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ABSTRACT

Research by the staff and advanced students of the North Dakota Summer Institute of Linguistics is presented. In "Verb Agreement and Case Marking in Burushaski" (Stephen R. Willson), an overview of Burushaski morphology and syntax is presented, with special attention to verb agreement and case marking. "A Backwards Binding Construction in Zapotec" (Cheryl A. Black) looks at a construction in which a null subject is coreferential with the possessor of the direct object. An analysis of the Greek noun phrase within the X-bar theory of phrase structure is offered in "On Generating the Greek Noun Phrase" (Cheryl A. Black, Stephen A. Marlett). In Meigu County Yi Tone" (Andy Eatough), tone data from a never before documented Chinese dialect are presented. "A Search for Inflectional Priming Reveals an Effect of Discourse Type on the Lexical Access of Inflected Verbs" (Greg Thomson, Bushra Adnan Zawaydeh) reports the test of a hypothesis about the organization of the mental lexicon. (MSE)

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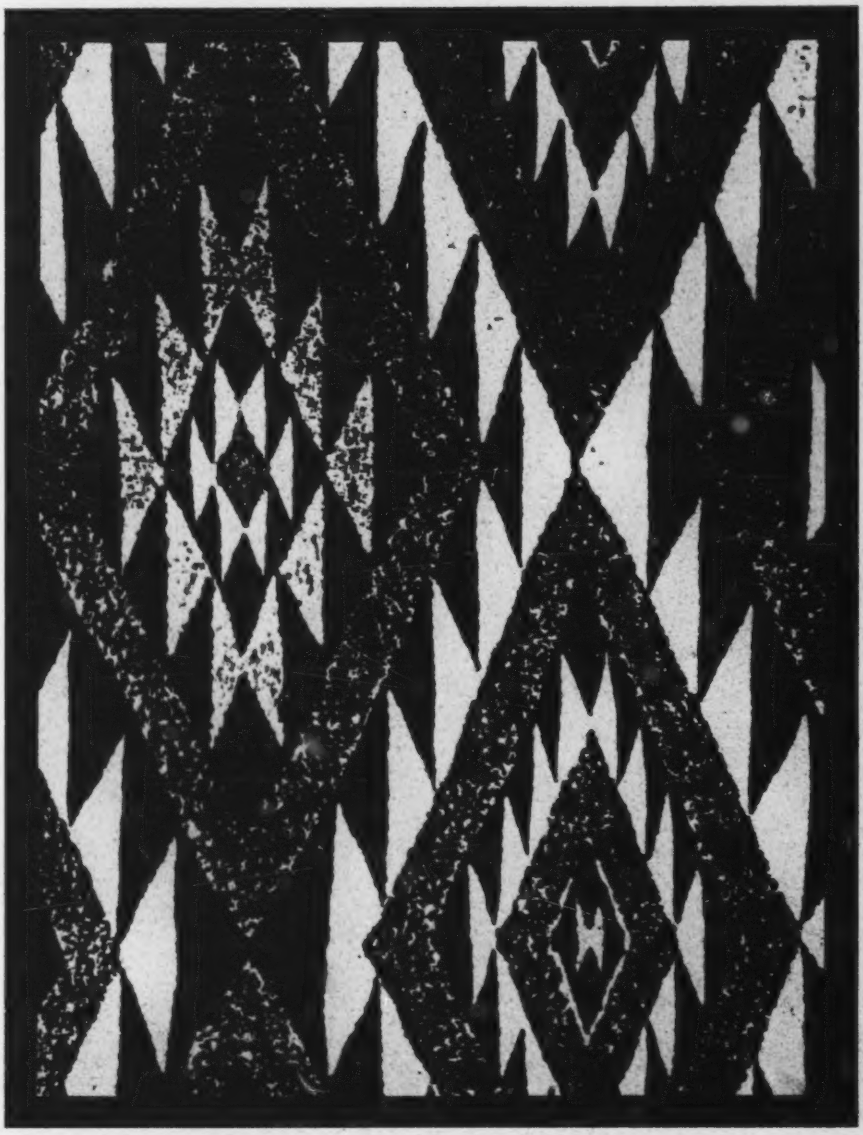

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Work Papers of the Summer Institute of Linguistics, University of North Dakota Session

1996 Volume 40

Editors: Stephen A. Marlett and Charles H. Speck

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Preface

In this 40th volume of Work Papers of the Summer Institute of Linguistics, University of North Dakota Session, we continue to present results of some of the on-going research that our staff and advanced students are engaged in.

In the lead article Willson presents an overview of the morphology and syntax of Burushaski (Pakistan) with special attention to verb agreement and case marking. For the first time, he carefully documents the verb agreement and case marking facts and proposes a solution within the framework of Relational Grammar. Interestingly, the case marking system is shown to operate a lot like Choctaw (Davies 1986), and to provide one more argument for Postal's analysis of antipassive.

Black continues to apply modern linguistic theory to her knowledge of Zapotec (Mexico). Here she looks at a construction in which a null subject is coreferential with the possessor of the direct object. She considers and rejects several analyses, and concludes that this is a case where the tail of a chain of coreferential elements is identified rather than the head.

Two seminars on Greek syntax have been offered in past years at the Summer Institute of Linguistics of the University of North Dakota. Black and Marlett's article grew out of these seminars. They present an analysis of the noun phrase within the X-bar theory of phrase structure and argue that the distribution of articles supports the recent proposal that the traditional noun phrase is best analyzed as a determiner phrase which may then take a noun phrase as its complement.

Eatough presents tone data from a never before documented dialect of Yi (China) in a format that was proposed for data squibs in 1993.

Finally, Thomson and Zawaydeh set out to test a hypothesis about the organization of the mental lexicon. Their test failed to support their hypothesis, but yielded an unexpected result. They found that responses to inflected verbs appeared to be affected by discourse processing factors while responses to uninflected verbs appeared not to be affected by discourse. This supports a proposal made by Morrow (1986) and opens up new areas of research.

We would like to thank Cheryl Black and Mark Karan for reviewing several of the articles and offering helpful feedback on them. We also thank Becky Moser for helping to edit the papers, and Annie Olsen for helping in the preparation for typesetting.

S. A. M.
C. H. S.

Verb Agreement and Case Marking in Burushaski

Stephen R. Willson[1]

Burushaski verb agreement and case marking phenomena are complex and have not been described adequately by any current theory of syntax. In particular, no explanation has yet been given as to why a variety of nominals can trigger agreement in the verbal prefix. In some cases the apparent subject triggers this agreement, in others the direct object appears to do so, in others the indirect object, in others the possessor of the direct object, in others a benefactive or source nominal. Also, the constraints on the usage of ergative, absolutive and oblique case, and other indicators of grammatical relations on nominals, have been insufficiently characterized in the literature on Burushaski. In this paper I propose an account of these facts, and several others relating to Burushaski clause structure, within the framework of Relational Grammar.

1. Introduction

1.1. Background

Burushaski is a language spoken by about 100,000 people in northern Pakistan. There are two main dialects of the language, one spoken in the Yasin valley (also called Werchikwar), and the other spoken in the Hunza and Nagar valleys. Although there are some differences between the Burushaski spoken in Hunza and Nagar, they are few.[2]

Burushaski is classified as a language isolate. No conclusive studies have yet been done to link it genetically to any of the neighboring language groups, nor to any other language for that matter (e.g. the languages of the Caucasus). These neighboring groups are Indo-Aryan Dardic (represented by Kalasha and Khowar to the west, and Shina to the south), Western Iranian (represented by Waqhi to the north), West Tibetan (represented by Balti to the east), and Turkic (represented by Kirghiz and Uighur further to the north).

This study will focus exclusively on the dialect of Burushaski spoken in central Hunza, specifically the township of Hyderabad. However, most of the rules also apply to Nagar Burushaski, and many apply to the Yasin dialect as well.

1.2. History of Burushaski studies

Burushaski has received a relatively large amount of attention from linguists compared to the surrounding languages of northern Pakistan. This is due in large part to its nature as a language isolate. Much of the work done on the language is summarized in Berger 1985a.

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[1] This article is a slightly revised version of the my 1990 M.A. thesis at the University of North Dakota. I would like to thank the following people for their great help with this article: my friend Kisro Khan from Hunza; my thesis committee chairman Stephen Marlett; the other members of my M.A. committee, Albert Bickford and Desmond Derbyshire; and my supportive wife Sharon Willson.

[2] There are two main differences between Hunza and Nagar Burushaski. One is the presence of more borrowed words from Shina in the Nagar dialect. The other is the difference in the second person singular personal pronoun (ún vs. úm for the Hunza and Nagar dialects respectively) and the form of the copula when showing agreement with "y" class singular nouns (eg. bilá/dilá *it is*). For more extensive treatment of these and other dialect differences, see Berger (forthcoming).

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Volume 40, 1-71.

The first major published presentation of Burushaski data was *The Hunza and Nagyr Handbook* in 1889 by Gottlieb Leitner. The portion of this work that is of interest to the study of Burushaski dialects is a section entitled 'The Traveler's Vade-Macum' where a number of words, phrases, and texts of Hunza and Nagar Burushaski are compared with the neighboring Dardic language Shina. These are the oldest available Burushaski texts.

The next work to be issued was *The Burushaski Language* by D.L.R. Lorimer (1935-38). This has been the standard reference work on Hunza Burushaski. The three volumes consist of a grammar, a collection of texts with translations, and a basic dictionary. The data quality of Lorimer is quite good, although his phonetic transcription is unreliable.

Hermann Berger published his *Das Yasin Burushaski* in 1974, the first major study of the dialect spoken in Yasin. This also includes a grammar sketch, a collection of texts and a basic dictionary. The data quality is good and the transcription is usable for further studies.

A number of journal articles have appeared from the University of Montreal by Yves-Charles Morin, Etienne Tiffou, and others. These studies include a Yasin vocabulary list (Morin et. al. 1979), a study of the influence of Urdu on Yasin Burushaski (Morin and Dagenais 1977), a study of Burushaski morphological constraints (Morin 1976), and works on Burushaski voice onset time (Marchal et. al. 1977), usage and function of ergative case (Tiffou 1977), split ergativity (Tiffou and Morin 1982), and the passive construction (Morin and Tiffou 1988).

Basic studies of Burushaski phonology, plural noun and adjective morphology, and verb inflection have been presented in Morgenstierne et. al. 1945. Further work on Burushaski phonology was done in Toporov 1970. An important study of the relationships between Hunza and Nagar Burushaski is presented in Varma 1941.

Various studies have been undertaken to determine the genetic relationship of Burushaski. Among these are Bouda 1950, Toporov 1971, and Tikkanen 1988 and 1995. None of these studies has produced any conclusive results.

More recently there has been the publication of *Contes du Yasin*, a basic grammar of Yasin Burushaski with an accompanying dictionary (Tiffou and Pesot 1989, Morin and Tiffou 1989), and *Hunza Proverbs*, a collection of proverbs, riddles, and sayings (Tiffou et. al. 1993). Also of note are several books of Burushaski proverbs, riddles, poems, and cultural information by the Hunza scholar Dr. Allaama Nasiruddin Hunzai (Hunzai 1961, 1991a, 1991b). Berger is currently completing work on his three-volume study of Hunza and Nagar Burushaski. This will also consist of a grammar, a collection of texts, and an extensive wordlist.

The research for this paper was conducted during three visits to Hunza in the summers of 1987, 1988 and 1989. My principle language consultant was Kisro Khan of Hyderabad. I also received valuable help from Hussain Ali and members of his family, also of Hyderabad.

1.3. Posing the problem

Two types of grammatical rules that often figure into descriptions of languages are verb agreement rules and case marking rules. These kinds of rules can be stated in a form similar to that given below:

(1) a. The verb agrees with its subject in person and number.

b. Direct objects are marked with accusative case.

At first glance however, the set of rules required to account for Burushaski verb agreement and case marking phenomena in different clause types seems anything but simple or elegant. In example set (2) are some sentences that typify the most common range of markings one might find in any text.[3]

(2) a. dasín háa le hurúTumo
dasín há-e le hurúT-umo
girl/ABS house,y-OBL in sit-3sf/PAST
The girl sat in the house.

b. dasín háa le móyanumo
dasín há-e le mó-yan-umo
girl/ABS house,y-OBL in 3sf-sleep-3sf/PAST
The girl slept in the house.

c. hilése dasín muyeétsimi
hilés-e dasín mu-yeéts-imi
boy-ERG girl/ABS 3sf-see-3sm/PAST

The boy saw the girl.[4]

d. hilése dasínmo r toofá muúmi
hilés-e dasín-mo r toofá mu-ú-imi
boy-ERG girl-OBLf to gift,x/ABS 3sf-give,x-3sm/PAST
The boy gave the girl the gift.

e. hilése dasínmo tsum toofá yánimi
hilés-e dasín-mo tsum toofá i-yán-imi
boy-ERG girl-OBLf from gift,x/ABS i-yán-imi
The boy took the gift from the girl.

The unmarked order for clause constituents in Burushaski is Subject-Object-Verb. Every finite verb requires an agreement suffix. The suffix on each of the verbs in (2) above shows agreement with the clause initial nominal - the subject/Agent. In addition, many verbs require an agreement prefix. This is the case for examples (2b-e). This prefix in (2b) shows agreement with the subject/Agent, in (2c) and (2e) with the direct object/ Patient, and in (2d) with the indirect object/Recipient.[5]

Subjects of intransitive clauses are marked with Absolutive (ABS) case as in (2a,b). Subjects of transitive clauses are marked with Ergative (ERG) case as in (2c-e). Direct objects are marked with ABS case as in (2c-e).[6] Objects of postpositions are marked by Oblique (OBL) case. Indirect objects are marked by the postposition r *to* as in example (2d). Sources are marked by the postposition tsum *from* as in example (2e).

From the five sentences presented above we could propose the following rules:

---

[3] See section 2.1.1 for a discussion of Burushaski phonology and the orthography used in this paper.

[4] See section 2.3.3 for a discussion of the variance in the agreement prefix forms.

[5] The prefix of yánimi in example (2e) is not apparent, but this is the form of the verb used when the thing taken is a singular noun of the h or "x" class. Gánimi is form used when the thing taken is a "y" class noun. See sectoin 2.2 for discussion of Burushaski noun classes.

[6] The terms 'subject', 'direct object', 'ergative' and 'absolutive' are used here in a pretheoretical sense. These terms will be defined more carefully in the next and succeeding sections.

(3) Verb agreement rules (preliminary version)

a. The verb agrees by means of a suffix with the subject.

b. The verb agrees by means of a prefix with the indirect object if there is one, or if there is none, with the direct object if there is one, or if there is none, with the subject of certain intransitive verbs.

(4) Case marking rules (preliminary version)

a. Absolutives occur in ABS case.

b. Ergatives are marked with ERG case.

c. Indirect objects are followed by the postposition r *to*.

d. Locatives are followed by the postposition le *in, at*.

e. Sources are followed by the postposition tsum *from*.

f. Postpositions require their objects to be in OBL case.

Thus far the only real complexity in the rules is in verb agreement rule (3b). Now we will consider some additional examples.

(5) hilése dasín taswiir móoltirimi
hilés-e dasín taswiir móo-ltir-imi
boy-ERG girl/ABS picture.y/ABS 3sf-show-3sm/PAST
The boy showed the picture to the girl.

The problem with (5) is the case marking of dasín *girl* which in the English translation is an indirect object, yet is marked by ABS case. If this nominal was an indirect object in Burushaski, the rules in (4) would predict OBL case marking followed by the postposition r.

Now consider example (6) below.

(6) hilése dasínmo tsum pén mushíirimi
hilés-e dasín-mo tsum pén mu-shíir-imi
boy-ERG girl-OBLf from pen.x/ABS 3sf-snatch-3sm/PAST
The boy snatched the pen from the girl.

The problem with this example is verb agreement. In sentence (2e) above which had a source nominal, prefix agreement was with the direct object. Sentence (6) also has a source nominal but agreement is with the source itself, not the direct object.

Now consider the following additional example.

(7) hilése dasínmo r barénimi
hilés-e dasín-mo r barén-imi
boy-ERG girl-OBLf to look.at-3sm/PAST
The boy observed the girl.

There are two problems with example (7) for the rules in (3) and (4) above. First, the direct object (at least in the English translation) is followed by the postposition r. Second, the verb has no prefix, while the verb in the roughly equivalent sentence (2c) has a prefix showing agreement with the apparent direct object.

Here is another example to consider.

(8) hilése dasínmo mómiSh móoskartsimi
hilés-e dasin-mo mó-miSh móo-skarts-imi
boy-ERG girl-OBLf 3sf-finger.x/ABS 3sf-cut-3sm/PAST
The boy cut the girl's finger.

The problem here is that the verbal prefix shows agreement with the possessor dasín *girl*, not with the head of the direct object constituent mómiSh *her finger* as would be expected.

And another example:

(9) dasín redyó dumóyalumo
dasín redyó d-mó-yal-umo
girl/ABS radio.x/ABS d-3sf-hear-3sf/PAST
The girl heard the radio.

Here the problem is that the subject of this apparently transitive clause has ABS case marking and triggers agreement in both the verbal prefix and suffix.

Again, let's look at another example:

(10) dasínmo r hán gitáapan awaáji bilá
dasín-mo r hán gitáap-an awaáji b-ilá
girl-OBLf to one.y book.y-INDEF/ABS need be-3sy/PRES
The girl needs a book.

Here the problem is that dasín *girl* is followed by the r postposition which is normally used for indirect objects. Also, the copula b *to be* is showing agreement as if gitáapan *a book* were the subject.

We see from examples (5)-(10) that the relatively simple set of rules given in (3) and (4) would have to be considerably more complicated to account for all the data at hand, at least if we assume that the grammatical relations in the Burushaski clauses closely parallel their English translations. In this paper I will propose and argue for a set of verb agreement and case marking rules, along with analyses for all of the above sentences, using the Relational Grammar (RG) framework. These rules will show that Burushaski has many of the syntactic features found in other languages around the world. They will also lend support to the view that Relational Grammar is a framework in which meaningful linguistic universals can be stated, and in which insightful grammars of individual languages can be constructed.

Although a background in Relational Grammar will be useful in reading this paper, I will not assume that the reader necessarily has such a background. I will provide brief explanatory comments where it will be helpful. The reader is referred to several introductory works on RG (such as Perlmutter 1983a) for more information.[7]

2. Preliminaries

2.1. Typological characteristics

Burushaski, though a language isolate, manifests many of the attributes of other South Asian languages (Masica 1976:19-39). Some of these will be briefly discussed in this section.

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[7] Other introductory works on RG include Perlmutter 1980, Perlmutter and Rosen 1984, and the references listed in Dubinski and Rosen 1987.

2.1.1. Phonology

Burushaski is typical of other South Asian languages in that it employs retroflex stops and affricates, aspirated stops and affricates, and nasalized vowels (though slightly used). It is similar to the neighboring Dardic languages with its retroflex grooved fricatives and affricates. It differs from the neighboring languages in its use of a voiced palato-velar approximate.

There is no commonly accepted way to write Burushaski. Therefore the orthography used in this paper is a simple working version. Some writers would replace the uppercase letters with their lowercase versions and a dot or accent mark above or below it.

(11)

p	voiceless bilabial stop
b	voiced bilabial stop
t	voiceless alveolar stop
th	voiceless aspirated alveolar stop
d	voiced alveolar stop
T	voiceless retroflex alveolar stop
Th	voiceless aspirated retroflex alveolar stop
D	voiced retroflex alveolar stop
s	voiceless alveolar fricative
z	voiced alveolar fricative
sh	voiceless palato-alveolar fricative
Sh	voiceless retroflex palato-alveolar fricative
f	voiceless bilabial affricate[8]
ts	voiceless alveolar affricate
tsh	voiceless aspirated alveolar affricate
c	voiceless palato-alveolar affricate
ch	voiceless aspirated palato-alveolar affricate
j	voiced palato-alveolar affricate
C	voiceless retroflex palato-alveolar affricate
Ch	voiceless aspirated retroflex palato-alveolar affricate
J	voiced retroflex palato-alveolar affricate
k	voiceless velar stop
kh	voiceless aspirated velar stop
g	voiced velar stop
q	voiceless uvular stop
qh	voiceless aspirated uvular stop
G	voiced uvular stop
h	voiceless laryngeal fricative
l	voiced lateral approximate

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[8] Phonemically this is /ph/. The letter "f" is used in borrowed words and the digraph "ph" is used in Burushaski words.

r	voiced alveolar flap
R	voiced retroflex alveolar flap (phonemically the same as D, only used with words borrowed from Urdu)
m	voiced bilabial nasal
n	voiced alveolar nasal
N	voiced velar nasal
w	voiced labio-velar approximate
y	voiced palatal approximate
Y	voiced palato-velar approximate[9]

When a Burushaski word is used sentence-initially in the text of this paper, the first letter will be capitalized. This is done only to follow convention and is not a claim that the word begins with a retroflex consonant or some other phoneme that is symbolized by a capital letter.[10]

Stress in Burushaski is superficially contrastive, as evidenced in the minimal pairs below:

(12) a. báre vs. baré
of the valley *look!*

b. íne vs. iné
3sh-ERG *DEM3sh*

Stress is indicated in the transcriptions in this paper.

Burushaski has five vowels: a, e, i, o, and u. Vowels occur in both long and short forms, nasalized and non-nasalized.[11] In this paper long vowels are analyzed as sequences of identical vowels in which either of the vowels can be stressed.[12]

(13) a. múu muú
her father *now*

---

[9] The body of the tongue approaches the position midway between the palate and the velum without causing friction, yet comes closer to the roof of the mouth than for a high central vowel.

[10] Burushaski words are only capitalized sentence-initially when used in the text of this paper. The same words, when used in the numbered examples, have the proper phonemic capitalization.

[11] Nasalized vowels in this paper are indicated by a caret (^) above the vowel.

[12] Sequences of non-identical vowels are also common as in the following examples:

(i) a. úe ué
3p-ERG *3p/DEM*

b. éi ei
his daughter *my son*

c. óuruTas óuwas
to make them sit *to not give to them*

A correlate of stress is higher pitch, which is especially noticeable in sequences of identical vowels, the second of which is stressed. For example the root for *name* is ik. This is an inalienably possessed noun and must always be preceded by an agreement prefix. Although superficially contrastive as mentioned above, stress generally occurs on the second syllable of a word. The result when the third person singular masculine agreement prefix i- is attached to ik is iik *his name*, with a noticeably higher pitch in the second vowel. As there are no monosyllabic (single vowel) words that contrast in pitch, a tone analysis for this phenomenon is unlikely.

b.	dúun	duún
	they having come	*having held*

2.1.2. Word order

The basic order of constituents in a clause in Burushaski is SOV. This order is flexible however. For effect, the order of the subject and object in (14) below could be reversed.

(14)	íne	gús	muyeétsimi
	in-e	gús	mu-yeéts-imi
	3sh-ERG	woman/ABS	3sf-see-3sm/PAST
	He saw the woman.		

Other constituent orderings are:

(15) Modifier - noun[13]
Noun - postposition
Relative pronoun - relative clause
Qualifier - adjective

2.2. Noun morphology

2.2.1. Noun classes

There are four noun classes in Burushaski. These are given below followed by the commonly used class designators.[14]

(16)	(human) masculine nouns	m
	(human) feminine nouns	f
	non-human count nouns	x
	mass nouns	y

These noun classes affect the choice of agreement suffixes on verbs, forms of personal pronouns, suppletive verb roots, plural suffixes, and other aspects of Burushaski morphology. In (17) below, examples are given of the different forms of the agreement suffix for the verb b̲ *to be* for predicate nominals and predicate adjectives of the m, f, "x", "y" singular and "y" plural noun classes. Forms of personal pronouns are also given for anaphors of these classes. Suppletive roots for the verb wáshias *to throw* are also given. The choice of verb root when a clause con-

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[13] Modifiers include adjectives, possessors, demonstrative pronouns, quantifiers, participles and infinitives.

[14] Often rules and morpheme glosses presented in this paper will refer to groups of noun classes. In such cases I will use the following abbreviation conventions:

(ii)	h	the noun classes m and f (as opposed to "x" and "y")
	m	the noun class m (as opposed to f, "x" and "y")
	f	the noun class f (as opposed to m, "x" and "y")
	hx	the noun classes m, f and "x" (as opposed to "y")
	mxy	the noun classes m, "x" and "y" (as opposed to f)

The object agreement prefix i̲- (and also the stressed form é̲-) can indicate agreement with an m, "x" or "y" class nominal. In this paper I have only put in the appropriate gloss that is necessary for the reader to see which nominal is being currently cross-referenced. For example, if in a given sentence the agreement prefix is cross-referencing a human masculine nominal, I will gloss it as 3sm, not 3smxy.

tains this verb is determined by the noun class of the direct object. Finally, typical forms of the plural suffix are given for nominals of the various noun classes.[15]

(17)	m	f	x	ys	yp
Agreement suffix	-ai	-o	-i	-ila	-itsaN
Personal pronoun	in	in	es	et	ek
Verb root	wáshias	wáshias	wáshias	bisháias	gíYas
Plural suffix	-tiN	-tiN	-isho/-ants	-iN	-iN

While the count/mass distinction between "x" and "y" class nouns generally holds (dán *stone* is "x" while tshíl *water* is "y"), there are exceptions.[16] For example, books can be counted in Burushaski (hán gitáap *one book*, altó gitáapiciN *two books*). However, the form of the agreement suffix on the copula when it shows agreement with this noun (hán gitáap b-ilá *it (ys) is one book*) is of the "y" class. The plural suffix that attaches to this noun (-iciN) is of the class that only follows "y" class nouns. The anaphoric pronoun for gitáap is that used for a "y" class noun (ét *3sy*). One verb for *to throw* has three forms. The form used when gitáap is a direct object is bisháias, which is only used when the direct object is a "y" class noun.

These noun classes merge in certain cases. The distinction between m and f disappears in the uninflected third person singular personal pronoun (ín *3smf*), and in all forms of third person plural personal pronouns (ú *3p/ABS*, ú-e *3p-ERG*, ué *DEM3p*). The distinction between the "x" and "y" noun classes disappears in the negative singular form of the verb b *to be* (apí *NEG-be-3sxy*), and the past tense form of manáas *to become* (maními *become-3smxy/PAST*).

2.2.2. *Noun affixes*

Burushaski is an agglutinative language. It has two numbers, singular and plural, with a variety of plural suffixes that attach to nouns, adjectives, and nominalized verbs.

Definiteness of nominals is unmarked, while indefiniteness is marked by the indefinite singular suffix -an and the indefinite plural suffix -ik.

Burushaski has three cases: ergative, absolutive, and oblique. Ergative case is marked by the suffix -e. Absolutive case is unmarked. Oblique case is marked by the suffix -e for non-feminine (m, "x" and "y") nouns and -mo for feminine nouns.[17]

Ergative case is used for subjects of transitive clauses in all verb tenses except future tense. In clauses with a verb in future tense, the subject usually occurs in absolutive case. Absolutive case is typically used for subjects of intransitive clauses, and for direct objects. Oblique case (without a following postposition) is used for possessors.[18]

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[15] The number of plural suffixes in Burushaski is rather large (Lorimer lists over 60, although he includes a large number of allomorphs) and nouns, adjectives and nominalized verbs are subcategorized as to which plural suffixes they allow or require. The examples presented here are the more commonly used forms.

[16] The more common of these include há *house*, tóm *tree*, and gitáap *book* which are countable, yet "y" class nouns, and zamíin *land* which is an "x" class noun.

[17] The feminine oblique suffix -mo is also used for another purpose which is discussed in footnote 37.

[18] To define the terms 'subject', 'direct object', 'ergative' and 'absolutive' more carefully, I use the two concepts that are central to RG: the notion of primitive (undefined) grammatical relations that a nominal bears in a clause (such as 'subject of', 'direct object of' and others), and multiple levels at which a nominal may bear these relations. A monostratal clause has only one level (or stratum) at which nominals bear grammatical relations. A multi-stratal clause has more than one level. Typically in a given level in a

All grammatical relations except subject, direct object, and possessor are marked by postpositions. Some postpositions in Burushaski (such as r *to*, tsum *from* and le *with*[19]) are not phonologically independent words, while others (such as dalbáT *across* and yaar *under*) are. Sequences of postpositions also occur, as in (18).

(18) inmo tsum yar
3sh/OBLf from before
before her

Postpositions govern the case of their objects (i.e. the nominal they follow), usually requiring it to be in oblique case and sometimes in absolutive case. Some postpositions such as ulo *in* require their objects to be marked with oblique case if feminine and absolutive case otherwise.

Many nouns representing body parts and kinship terms are inalienably possessed and require a prefix indicating the possessor. These prefixes are identical to the object agreement prefixes used on verbs. Some examples are given below.

(19) a. yuúTis
i-úTis
3sm-head
his head

b. múu
mu-u
3sf-father
her father

c. áNgo
a-Ngo
1s-paternal.uncle
my paternal uncle

---

clause, one nominal bears the 'predicate' relation, another bears the 'subject' relation and so on. Nominals that bear these relations head 'arcs', with the 'tail' of these arcs being the clause itself. In a multi-stratal clause, a nominal may head more than one arc.

An arc can be referred to by the grammatical relation that the nominal heading it bears in a given stratum. An arc is labeled 'ergative' if the nominal that heads it bears the subject relation in a transitive stratum. An arc is labeled 'absolutive' if the nominal that heads it bears either the direct object relation in a transitive stratum, or the subject relation in an intransitive stratum.

In this paper I will most often use tabular diagrams such as the following to illustrate clause structure.

(iii)	2	1	P
	1	Cho	P
	shishámuts	ínmo tsum	táq umánie
	windows	by her	they became smashed

Shishámuts *windows* heads two arcs in (iii), an 'initial' 2 arc and a 'final' 1 arc, both of which are absolutive. The pronoun ín *her* also heads two arcs, an initial 1 arc (which is ergative) and a final Cho arc (which is neither ergative nor absolutive but is a 'retirement' arc). The verb in this simplified table heads both an initial and final Predicate (P) arc.

[19] For the sake of clarity, these postpositions are written in this paper as separate words. Normally they are joined to the word they follow.

2.3. *Verb morphology*

There are two major groups of verbs in Burushaski: inflectible verbs and uninflectible verbs. Inflectible verbs minimally require an agreement/tense suffix, and allow or require other affixes depending on the subcategorization of the verb. Uninflectible verbs never allow an agreement suffix or any other affix; but they require an auxiliary verb, which is usually étas *to do* or manáas *to become*. The syntax of uninflectible verbs is discussed in section 6. The discussion of verb morphology that follows refers only to inflectible verbs.

Finite (or tensed) verbs are usually described as occurring in either a past stem form or a present stem form.[20] Phonologically, the present stem is derived from the past stem by the suffixation of -c̱ to the root. Without the -c̱ suffix, the past, present perfect, and past perfect tenses are formed. With the -c̱ suffix, the present, future, and imperfect tenses are formed. Because of the tenses that are formed by its presence, I gloss this -c̱ suffix as NONPAST in this paper, although it can perhaps be thought of as a durative aspect morpheme.

A finite verb consists minimally of a stem followed by a person agreement/tense suffix. The verb girátimi *he danced* is a good example.

(20) girátimi
girat-imi
dance-3sm/PAST
He danced.

However, a verb can convey a good deal more information than just this. The example below has five affixes and is not at all unusual.

(21) ayóoci

```
a - ó - <L> - t - c - i
║   ║   ║     ║   ║   ║
║   ║   ║     ║   ║   ║
║   ║   ║     ║   ║   ╚═ third person singular
║   ║   ║     ║   ║      masculine subject,
║   ║   ║     ║   ║      future tense
║   ║   ║     ║   ║
║   ║   ║     ║   ╚═ Non-past
║   ║   ║     ║
║   ║   ║     ╚═ do
║   ║   ║
║   ║   ╚═ Vowel lengthening (causative)
║   ║
║   ╚═ Third person plural human direct object
║
╚═ Negative
```

He will not make them do (it).

In the following presentation, I will only mention those verbal morphemes that have not been discussed thus far.

---

[20] Nonfinite verb forms include the infinitive, several kinds of participles, verbs with postpositions, and vocative, optative and subjunctive forms. These verb forms are not discussed in this paper.

2.3.1 The Negative prefix

The left-most prefix in a verb is the negative morpheme. The negative prefix has two major allomorphs: a- and oó-.[21] The latter is limited to a few verbs.

(22)	a.	jé JúCam *I will come*	jé aCúCam *I will not come.*
	b.	jé gutshárcam *I will walk*	jé akútsarcam *I will not walk.*
	c.	sabáq pháSh meími *The lesson will end*	sabáq pháSh oómaimi *The lesson will not end.*
	d.	jé nícam *I will go*	jé oónicam *I will not go.*
	e.	jé bésan séyam *I will say something*	jé bésan oósayam *I will not say anything.*

2.3.2. The "d-" prefix

The next morpheme which may occur in a verb is the "d-" prefix. There is a subset of verbs which all begin with d-. They include the following verbs presented in example set (23) below.

(23)	a.	dítsas	*to bring*
	b.	dématalas	*to yawn*
	c.	désilas	*to soak*
	d.	díGunas	*to ripen*

Berger, in his study (forthcoming), has found four usages for the d- prefix: to change the 'primary transitive' into an intransitive (ikhácias *enclose* vs. dukhácias *be enclosed* -- see section 4); to derive a verb with more of a focus on the location of the topic (éeras *to send* vs. déeras *to send here*); to derive a word with no change of meaning from one without the d- (sókas *dismount* vs. dusókas *dismount*); and on certain verbs with no derivational relation to any other verb (dítsas *bring, x* and dítalas *wake up*).

2.3.3. The object agreement prefix

Under conditions specified by the syntax, (see following sections), a verb may carry an object agreement prefix. This prefix shows agreement with one nominal in the sentence in person, number, and noun class. It takes basically one of two forms: unstressed or stressed.[22] Sets of these prefixes are presented in (24).[23]

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[21] Another apparent form, eé-, appears when the negative prefix a- joins the 3smxy agreement prefix i-, as in iwálas *for him to fall* and eéwalas *for him not to fall*. Eé- is not a separate prefix though.

[22] The unstressed/stressed distinction has many exceptions, however, which will not be discussed in this paper.

[23] Berger (forthcoming) lists a third type of prefix, taken from the stressed set in (24) but with a long vowel. Since these prefixes are used mainly in causative, possessor ascension, impersonal or antipassive constructions, I am analyzing them as a simple stressed prefix plus a causative (etc.) morpheme which is represented as <L>, or lengthening.

Burushaski has a rule of vowel epenthesis which inserts a vowel between the d- prefix and the initial consonant of the agreement prefix if there is one. The shape of the vowel is determined by the vowel in the

(24) Prefix agreement types

	Unstressed		Stressed	
	Sg	Pl	Sg	Pl
1	a	mi	á	mé
2	gu	ma	gó	má
3hm	i	u	é	ó
3hf	mu	u	mó	ó
3x	i	u	é	ó
3y	i	i	é	é

Some verbs prohibit an object agreement prefix (sénas *to say*, daldínas *to sift*) altogether. Other verbs allow a prefix when agreeing with h or "x" class nominals, but prohibit one for "y" class nominals (iltánas/tanáas *to pound x/y*, and iphúsas/pusáas *to bind up x/xy*). Note from the chart in (24) that there is no singular/plural distinction for agreement with "y" class nouns.

The verb manáas *to become* optionally allows an agreement prefix for human and "x" class nominals (under conditions discussed in section 6) and never allows a prefix for "y" class nominals, whether singular or plural.

(25) a. sá lálam imánibim
sá lálam i-man'-ibim
sun,x/ABS shine 3sx-become-3sx/PSTPRF
The sun had shone.

b. GéniSh lálam manílum
GéniSh lálam man'-ilum
gold,y/ABS shine become-3sy/PSTPRF
The gold had glittered.

The matter of which nominals determine agreement in this prefix will figure in the arguments presented later in this paper.

2.3.4. The causative/possessor prefix

A certain class of intransitive verbs can occur with the causative prefix s-.[24] A stressed object agreement prefix always precedes this causative prefix. An example is given below.

(26) a. ín ikháranimi
ín i-kháran-imi
3sh/ABS 3sm-late-3sm/PAST
He was late

b. jáa ín éskaranam
jé-e ín é-s-kharan-am
1s-ERG 3sh/ABS 3sm-CAUS-late-1s/PAST
I made him late.

---

prefix, following principles of vowel harmony that operate elsewhere in the language. For example, d-gó- becomes dukó-, d-má- becomes damá-, d-mó- becomes dumó-, and d-mé- becomes dimé-.

[24] This sort of process has been noted in other languages. See Andrews 1985:146 for discussion of Yidjin and Dyirbal.

A second causative prefix which consists of a null morpheme (Ø-) is used for another class of intransitive verbs. There is a third causative morpheme which consists of vowel lengthening in the object agreement prefix. This is the form found in example (21) above. Most transitive verbs can be causativized with this morpheme.[25]

A lengthened vowel in this position alternatively indicates agreement with a possessor nominal in the sentence. Possessor agreement is discussed in section 7, causatives in section 8.

2.3.5. The verb root

Verb roots occur in a variety of forms.[26] Several verbs without d- have suppletive forms; the choice of which form is used depends on the noun class of the subject (if the clause is intransitive) or direct object (if the clause is transitive). There is one form which begins with b when agreement is with a "y" class nominal and allows no agreement prefix. There is another form which usually begins with w or y when agreement is with a human and "x" class nominal that takes the normal set of agreement prefixes. Some examples follow.

(27)	a.	bélas	put it (ys) on
		yoólas	put it (xs) on
		uyoólas	put them (xp) on
	b.	búas	(ys) become dry
		buyáyas	(yp) become dry[27]
		yuúYas	(hxs) become dry
		uúYas	(hxp) become dry

---

[25] With some verbs, this causative prefix is not always a long vowel. Normally barénas *to look* never allows an agreement prefix. In the causative form, an object agreement prefix with a short (rather than long) vowel is added to form ébarenas. The causative form of baráas *to thresh* is ébaras *to make thresh*.

[26] All verbs have a root except the past stem form of the verb *to come*, which consists of a null root (alternatively analyzed as lengthening of the agreement prefix). This verb has the d- prefix followed by an agreement prefix followed by an agreement suffix with no intervening root. Some examples in the simple past tense are presented in (iv) below.

(iv) a. daáyam
d-a-Ø-am
d-1s-come/PAST-1s/PAST
I came.

b. dukóoma
d-gó-Ø-uma
d-2s-come/PAST-2s/PAST
You (sg) came.

c. diimi
d-í-Ø-imi
d-3sm-come/PAST-3sm/PAST
He came.

[27] The singular/plural difference between búas/ buyáyas *sg/pl become dry* is the pattern also found with gáartsas/garcáyas *sg/pl run*; it is not confined to "y" class arguments. This root allows a seldom used plural infix.

c.	wáshias	throw (hx)
	bisháyas	throw (ys)
	gíYas	throw (yp)

Here is a short list of typical verb roots:

(28)		Verb root	Gloss
	a.	ir	*die*
	b.	u	*give, x*
	c.	chi	*give, ys*
	d.	gaarts	*run*
	e.	guchai	*lie down*
	f.	huruT	*sit*
	g.	Gar'	*speak/curse*[28]
	h.	gaTamur	*knead*

2.3.6. The agreement/tense suffix

Every finite verb has a suffix that typically shows agreement with the subject of the clause; this suffix also indicates the tense of the verb. A typical range of agreement/tense suffixes for the third person present tense is given below.[29]

(29)	3sm/PRES	-ai
	3sf/PRES	-ubo
	3ph/PRES	-aan
	3sx/PRES	-ibi
	3px/PRES	-ien
	3sy/PRES	-ila
	3py/PRES	-itsaN

2.3.7. Summary

I summarize this section on verb morphology with the following chart illustrating the various components of a finite verb and their relative positions in the word.[30]

(30)	-3	-2	-1	0	1	2
	NEG	Obj Agr	CAUS/POSS	Root	NONPAST	Subj Agr

3. Monostratal Clauses

3.1. Introduction

Five basic types of clauses have been identified through work done in Relational Grammar (Perlmutter 1984:6). These types are: monostratal clauses, clauses involving revaluations (advancements and retreats), clauses with ascensions (raising and possessor ascension), clause union clauses, and clauses with dummies. Burushaski has clauses which belong to all five of these categories.

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[28] There is a subset of verbs in Burushaki called hypotactic verbs. When these verbs occur without any prefix, word stress falls on the syllable following the root, e.g. manáas *to become*, mináas *to drink*, gaTáas *to bite*. Hypotactic roots are written in this paper with an apostrophe following.

[29] These suffixes can be analyzed even further to include a number suffix and a person/class suffix, but the morpheme glosses in this paper will not be given in such detail.

[30] In most Burushaski texts a word-final question suffix, -a, is included. This can also be analyzed as a separate word.

Often in languages, various clausal constructions will be either possible or impossible depending upon the class of verb used. In some cases a construction is disallowed for all verbs. This is the case for the passive construction in many languages of Papua New Guinea (Li and Lang 1978). In other cases a clausal construction may be optional for most verbs but not all. English passives belong to this category. Most English verbs can be passivized but there a few ('want', 'like') which can only be passivized under strictly constrained conditions. In still other cases a construction may be optional and lexically restricted to a small subset of verbs. Antipassive in Choctaw is an example of this. The verbs banna *want/need* and yimmi *believe* occur in both ordinary transitive clauses (with nominative/accusative marking on subjects and direct objects) and in 'double accusative' clauses (with both the subject and the direct object marked accusative). Davies (1986:64-85) analyzes these latter clauses as antipassive constructions.[31] This one set of verbs can be used optionally in either monostratal transitive clauses or in antipassive clauses. Finally a given construction may be obligatory for a small set of verbs. 3-2 advancement in Seri is an example of this (Marlett 1981:288-298).

Although Burushaski has examples of each of the five main clausal constructions presented above, frequently they are obligatory and governed by a small set of verbs for that particular clause type. In this section I discuss Burushaski monostratal clauses and present a set of verb agreement and case marking rules to account for the relevant data. In section 4, I discuss one kind of revaluation construction; advancements. In section 5, I discuss the other kind of revaluation; retreats (or demotions). In section 6, I discuss multi-predicate constructions, or what have been analyzed traditionally in RG as clause union constructions. In section 7, I present the one form of ascension construction used in Burushaski, possessor ascension. In section 8, I present several types of causative clauses and in section 9, I give an analysis of some impersonal clauses involving dummies.

3.2. Monostratal clauses and basic morphology

A large number of clauses in Burushaski are monostratal. Example (31) is a monostratal intransitive clause with its associated stratal chart showing the grammatical relations of each clausal constituent.

(31)	dasín	múue	háa	le	hurúTumo
	dasín	mú-u-e	há-e	le	hurúT-umo
	girl/ABS	3sf-father-OBL	house,y-OBL	in	sit-3sf/PAST

The girl sat in her father's house.

1	LOC	P
dasín	múue háa le	hurúTumo
girl	in her father's house	she sat

Dasín *girl* is the only subject and triggers subject agreement in the verbal suffix. This nominal is also an absolutive and is marked with ABS case. There is no object to trigger object agreement. Múu *her father* is the possessor and is in oblique case. Há *house* is also in oblique case since it is the object of the postposition le *in*.

Example (32) illustrates a monostratal transitive clause.

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[31] Antipassive in Relational Grammar terms is the name given to a construction in which a nominal that bears the 1 relation in a transitive stratum bears the 2 relation in a succeeding intransitive stratum.

(32)	hilése	dasín	muyeétsimi
	hilés-e	dasín	mu-yeéts-imi
	boy-ERG	girl/ABS	3sf-see-3sm/PAST
	The boy saw the girl.		

1	2	P
hilése	dasín	muyeétsimi
boy	girl	he saw her

Hilés *boy* is the subject and triggers subject agreement on the verb. It is also an ergative and is marked with ERG case. Dasín *girl* is the direct object and triggers object agreement (the prefix mu-). Dasín *girl* is also an absolutive and occurs in the ABS case.

As noted in Tiffou and Morin 1982, in the future tense, the subject of a transitive clause such as that in (32) above is not marked with ERG case but rather occurs in ABS case.[32] For example:

(33)	hilés	dasín	muyeéshi
	hilés	dasín	mu-yeéts-c-i
	boy/ABS	girl/ABS	3sf-see-NONPAST-3sm/FUT
	The boy will see the girl.		

All other case marking and agreement phenomena remain the same for future tense transitive clauses except for the ABS case of the agent. In addition, verbs which can be passivized, causativized or undergo some other grammatical relation changing construction in non-future tenses retain these characteristics when in the future tense. For these reasons I analyze future tense transitive sentences such as (33) as simple monostratal clauses. Burushaski has a quirk in its ERG case marking rule that blocks ERG case in future tense clauses.

Example (34) illustrates a monostratal ditransitive clause.

(34)	hilése	dasínmo	r	toofámuts	píish	ótimi
	hilés-e	dasín-mo	r	toofá-muts	píish	o-t-imi
	boy-ERG	girl-OBLf	to	gift,x-PL/ABS	present	3px-do-3sm/PAST
	The boy presented gifts to the girl.					

1	3	2	P
hilése	dasínmo r	toofámuts	píish ótimi
boy	to the girl	gifts	he-presented-them

Hilés *boy* is the subject. It is marked with ERG case and triggers subject agreement on the verb.[33] Dasín *girl* is the indirect object and is followed by the postposition r. Toofámuts *gifts* is the direct object, occurs in ABS case, and triggers object agreement.

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[32] There are exceptions to this tendency however. The following example is grammatical only if the subject is in ERG case:

(v)	úne (*ún)	maasúum	qáum	ké	ósqaima?
	un-e	maasuum	qaum	ke	o-sqan-c-uma
	2s-ERG	innocent	nation,x	also	3ph-kill-NONPAST-2s/FUT
	Will you also kill the innocent nation?				

[33] For the time being I will ignore the actual structure of the uninflectible verb plus auxiliary predicate. This will be discussed in section 6.

Example (35) shows a transitive clause with a source nominal.

(35)	hilése	dasínmo	tsum	toofá	yánimi
	hilés-e	dasín-mo	tsum	toofá	i-yán-imi
	boy-ERG	girl-OBLf	from	gift,x/ABS	3sx-take,x-3sm/PAST

The boy took the gift from the girl

In this example hilés *boy* is the subject, is marked with ERG case, and triggers verb agreement in the verbal suffix. Dasín *girl* is the source and is followed by the postposition tsum. Toofá *gift* is the direct object, occurs in ABS case, and triggers object agreement (see footnote).

Finally (36) is an example of a reflexive clause.

(36)	khín	dasíne	mukhár	ésqanumo
	khin	dasín-e	mu-khár	e-sqan-umo
	DEMf.prx	girl-ERG	3sf-self,y/ABS	3sy-kill-3sf/PAST

This girl killed herself.

I analyze reflexive clauses in Burushaski as being monostratal. Here the subject khín dasín *this girl* is in ERG case and the direct object mukhár *herself* is in ABS case. The reflexive pronoun khár *self* is similar to the class of inalienably possessed nouns; it requires a possessive prefix. In this case the prefix cross-references the antecedent khín dasín *this girl.* Subject agreement is with khín dasín and object agreement is with the "y" class reflexive pronoun khár.

Based on the data presented thus far on monostratal clauses in Burushaski, the following tentative rules can be proposed.

(37) Verb agreement rules (working version a)

a. The verb agrees with nuclear terms.[34]

b. A nominal heading a 1 arc determines subject agreement.

c. A nominal heading a 2 arc determines object agreement.

(38) Case marking rules (working version a)

a. A nominal which heads a 3 arc is flagged with the postposition r.[35]

b. A nominal which heads a Source arc is flagged with the postposition tsum.

c. A nominal which heads a POSS arc is marked with OBL case.[36]

d. A nominal which is an ergative in a non-future tense clause is marked with ERG case.

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[34] In Relational Grammar, a 'nuclear term' is a 1 or a 2. An 'object' is a 2 or a 3. 1s, 2s and 3s are referred to as 'term' relations.

[35] Case marking rules (4d,f) from section 1 would also need to be added to this list which refer to Locatives being flagged by the postposition le (or ulo) and postpositions requiring their objects to be marked with OBL case etc. Since these rules are not central to the arguments of this paper, I will omit them in most of the statements of case marking rules that follow.

[36] I am assuming that possessors head POSS arcs in an NP. Rosen (1987) has proposed that possessors head 1-arcs within an NP, a proposal that I am not able to comment on at this time.

Note that there could also be a fifth case marking rule stating that nominals heading absolutive arcs occur in ABS case. However, since ABS case marking is null, or no marking at all, I will omit reference to ABS case in any further statements of rules.

4. Advancements

A 'revaluation' is a clausal construction in which a nominal heads arcs with distinct grammatical relations at successive levels (Perlmutter and Postal 1984a:84). There are two types of revaluation constructions, advancements and retreats. Both are used in Burushaski. In this section I will discuss advancements and in the next I will discuss retreats.

Grammatical relations in RG are arranged in the relational hierarchy 1 > 2 > 3 > nonterms. An advancement is any grammatical construction in which a nominal bears a certain grammatical relation at one level and bears the next higher grammatical relation in the hierarchy in the succeeding level. A common advancement construction is passive, in which a nominal bearing the 2 relation in a transitive stratum bears the 1 relation in the succeeding intransitive stratum (Perlmutter and Postal 1983a:18). Burushaski allows five types of advancements: unaccusative advancement, passive, Source-2 advancement, 3-2 advancement and Benefactive-3 advancement.

4.1. Unaccusative advancement

The examples in (39) and (40) show one property which divides all Burushaski intransitive verbs into two large classes, those which have an object agreement prefix and those which do not.

(39) a. jáa áu háa tsum duúsimi
jé-e á-u há-e tsum duús-imi
1s-OBL 1s-father/ABS house.y-OBL from come.out-3sm/PAST
My father came out of the house.

b. síruf hirí giráshaan akhóle
síruf hir-i girát-c-aan akhóle
only man-PL/ABS dance-NONPAST-3ph/PRES here
Only men dance here.

(40) a. tshórdimo hilés dítalimi
tshórdin-mo hilés d-í-tal-imi
morning-in boy/ABS d-3sm-wake.up-3sm/PAST
The boy woke up in the morning.[37]

b. acaanák hilés iírimi
acaanák hilés i-ír-imi
suddenly boy/ABS 3sm-die-3sm/PAST
Suddenly the boy died.

Examples (39a) and (39b) invite a straightforward analysis. Jáa áu *my father* and hirí *men* are intransitive subjects, occur in ABS case, and trigger subject agreement in the verb. The examples in (40) are not so clear. Hilés *boy* in both sentences is the subject, occurs in ABS case, and triggers subject agreement. But hilés also triggers object agreement in these examples, as is evidenced by the prefix i- *3sm* on the verbs. The question we must ask is "Why is the apparent subject of some intransitive clauses triggering both subject and object agreement in the verb?" The possibility that the examples in (40) are simple reflexive constructions seems unlikely, given both their meaning and the existence of clear cases of reflexives like example (36) in the preceding section, in which a reflexive pronoun is used. Also, if (40a,b) were reflexives, it is odd that there are no transitive forms of these verbs.[38]

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[37] The suffix -mo on the word tshórdin has the meaning of *in* or *during* or *at* and is used on 'time' words such as tshórdimo *in the morning*, saásaTumo *in the evening*, garúkimo *during 'springtime*, khúultomo *today*, yarkamaásmo *at first*, and the like. It is similar to the feminine oblique case ending except for the fact that all the nouns it attaches to are of the "y" class. The prefix d- on the verb dítalimi is the d- prefix mentioned in section 2.

The RG notions of 'unergative' and 'unaccusative' help in the analysis of these types of clauses. Intransitive verbs cross-linguistically divide into two groups, 'unaccusative' and 'unergative' (Perlmutter and Postal 1984a:94ff, Rosen 1984:42). An unaccusative verb requires an initial stratum in which the nominal bears the 2 relation and no nominal bears the 1 relation. An unergative verb requires an initial stratum in which a nominal bears the 1 relation and no nominal bears the 2 relation. Often, grammatical rules are sensitive to this division. For example, in Italian the selection of the perfect auxiliary is determined by the type of intransitive verb used (Perlmutter 1978, Perlmutter 1980, Rosen 1981).

Unergative verbs usually involve action or volition, while unaccusative verbs usually are stative or nonvolitional. There are some well-known exceptions to the active/stative division, as discussed in Rosen 1984, but it holds as a strong universal tendency.

In a clause with an unaccusative stratum, at some succeeding level the 2 often advances to 1 in order to satisfy the Final 1 Law (Perlmutter and Postal 1983c). This is called 'unaccusative advancement'. Clauses with unaccusative verbs are (at least) bistratal, while those with unergative verbs are often monostratal.

With these notions in mind we are able to analyze the examples in (39) and (40). The sentences in (39) contain an initial unergative stratum while those in (40) contain an initial unaccusative stratum. Stratal charts of the (a) examples in each set are given below.

(41) a.

1	Source	P
jáa áu	háa tsum	duúsimi
my father	from the house	he went out

b.

2	Tem	P
1	Tem	P
hilés	tshórdimo	dítalimi
boy	in morning	he woke up

In example (41a) jáa áu *my father* is only a 1 so it triggers subject agreement only. In example (41b) however, hilés *boy* is both a 2 and a 1 (due to unaccusative advancement). Since the verb agreement rules proposed in (37b,c) do not refer to levels, but to nominals heading 1 and 2 arcs at any level, hilés triggers both subject and object agreement.

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[38] Dítalas *to wake up* is a member of the class of intransitive verbs which have derived causative forms with the causative prefix s-. The causative of dítalas is déstalas *to wake him up* which in turn can be causativized with the <L> (lengthening) causative morpheme to form déestalas *to make him wake someone up*. However, dítalas itself cannot ever be used in a transitive clause, as can, for example, ésqanas *to kill* in example (36) of the preceding section.

Líras *to die* can never be used in a transitive clause, and it has no derived causative form. See section 8 for more on causatives in Burushaski.

Representative lists of Burushaki unergative and unaccusative verbs are given in (42).[39]

(42) a. baltánas - *to pout, be discontented*
duúsas - *to come/go out, emerge, depart*
gáartsas - *to run*
girátas - *to dance*
gutsháras - *to walk*
Garáas - *to curse, talk (badly)*
héras - *to cry*
nías - *to go*
sókas - *to descend*
tshindáas - *to lean on*

b. dématalas - *to yawn*
dépirkanas - *to stumble*
dikhíras - *to become less, be reduced*
dítalas - *to awaken*
iGásas - *to rot, go bad*
iíras - *to die*
imálas - *to feel shame, be discreet*
imánas - *to become*
iwáalas - *to be lost*
iwáras - *to become tired*
yuúYas - *to become dry/thirsty*

The correlation of the presence of the agreement prefix with nonvolitionality, and its absence with volitionality is not absolute, however. Muwálas (wálas *to fall* with the feminine prefix mu-) is the form used for the translation of both English sentences in (43), even though (43b) is volitional.

(43) a. Marcia fell from the second story window.
b. Marcia fell right on cue.

While many verbs appear in only one class, others may be either unaccusative or unergative, with corresponding differences in meaning. Unergative syntax correlates with volitionality and unaccusative syntax correlates with nonvolitionality. The volitional sentence in (44a) is monostratal. The nonvolitional sentence in (44b) is bistratal.

(44) a. sabúur jé tshíl ulo Gurtsám
sabúur jé tshíl ulo Gurts'-am
yesterday 1s/ABS water,y/ABS in become.sunken-1s/PAST
Yesterday I dived into the water.

b. sabúur jé tshíl ulo aGúrtsam
sabúur jé tshíl ulo a-Gurts'-am
yesterday 1s/ABS water,y/ABS in 1s-become.sunken-1s/PAST
Yesterday I drowned in the water.

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[39] Although the words presented here and their English glosses are in the infinitive form, the Burushaski words in (42b) are given with third person singular masculine object agreement prefixes.

4.2 Passive

In Relational Grammar a passive construction is characterized universally as one in which a nominal bearing the 2 relation in a transitive stratum bears the 1 relation at the succeeding level.[40] Such constructions occur in Burushaski for many transitive verbs. Both inflectible verbs and uninflectible verbs can be passivized; however, since the form of the passive differs between the two verb types, I will discuss them separately. I will also give an argument that such clauses are indeed passives, based on the condition on equi victims in Burushaski.[41]

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[40] All references to 'passive' constructions in this section refer specifically to plain personal passives. See Perlmutter and Postal 1984b:137 for a discussion of other kinds of passive constructions that are used in languages.

[41] It should be noted however, that Burushaski has several ways to omit reference to the subject without using passives. One such way is to use a third person plural agreement suffix on the verb and obligatorily omit any overt third person pronoun. This is a very common strategy used in languages of the world (Keenan 1985:247). The verbal agreement suffix is in the third person plural form and the subject may have an arbitrary referent. See for example the following sentence.

(vi)	ína	r	hán	tofáan	yuúcuman
	in-e	r	hán	toofá-an	i-ú-c-uman
	3sh-OBL	to	one,x	gift,x-INDEF/ABS	3sm-give,x-NONPAST-3ph/FUT

They will give him a gift.

There is another construction which might be thought to be a passive at first glance but which is probably best analyzed as a kind of cleft. Compare the following examples.

(vii)	a.	iné	gúse	hín	Guláaman	yánumo
		iné	gús-e	hín	Guláam-an	i-yán-umo
		DEMh	woman-ERG	one,h	slave,m-INDEF/ABS	3sm-buy,m-3sf/PAST

That woman bought a slave.

b.	hín	Guláaman	iné	gúse	yánum	bám
	hín	Guláam-an	iné	gús-e	i-yán-um	b-ám
	one,h	slave,m-INDEF/ABS	DEMh	woman-ERG	3sm-buy,m-STATPRT	be-3sm/PAST

A slave was bought by that woman. (more literally: A slave the woman bought.)

In the (b) example above the agent is marked by ERG case and the patient is in ABS case, but the position of these nominals is reversed. The verb occurs in the stative participle form and shows agreement with the patient. I have no explanation as to why object agreement should be with the patient in a clefted construction and the agent still be marked with ERG case.

This 'clefted' construction is the construction that Morin and Tiffou 1988:510 refer to as the pathetive construction. There are many examples of sentences of this sort, in which either the Agent or Patient can determine agreement on the auxiliary b̲ *to be*.

(viii)	jaNgí	ké	yárum	hína	le	duró	étum	bái
	jaNgí	ké	yárum	hín-e	le	duró	é-t-um	b-ái
	Jangi	also	before	one-OBL	with	work	3sy-do-STATPRT	be-3sm/PRES

Jangi is also one who worked with one before (as an apprentice).

Many transitive verbs can occur in this form which do not allow passives of the sort described in the main part of this section. For example:

4.2.1. *Passives of uninflectible verbs*

Personal passives of uninflectible verbs are quite common.[42] To form the passive of an uninflectible verb, the auxiliary verb manáas *to become* is used in place of the auxiliary verb étas *to do* which occurs in active clauses.[43] The 'agent' in passive constructions is seldom expressed, but when it is, it is followed by the postposition tsum.[44] Some examples are given below.

(ix)	hán	cíizan	sénum	bilúm.
	hán	cíiz-an	sén-um	b-ilúm
	one,y	thing,y-INDEF/ABS	say-STATPRT	be-3sy/PAST

One thing was said.

The examples in their section on prefixed passives seem to clearly be passive constructions under the analysis presented in this paper however. I present their example (10) below.

(x)	a.	ne	hír-e	cel	cá-m	bá-i
		the MASC	man-ERG	water Y ABS	impound PRET-PTCPL	be-3SG MASC SUBJ

The man has impounded the water.

	b.	cel	du-cá-m	duá
		water Y ABS	D-impound PRET-PTCPL	be 3SG Y SUBJ

The water has been impounded.

[42] Not all uninflectible verbs have grammatical passive counterparts, as the example below illustrates.

(xi)	a.	khóne	ámi	curúT	mótimi
		khón-e	á-mi	curúT	mó-t-imi
		ant,x-ERG	1s-mother/ABS	bite	3sf-do-3sx/PAST

The ant bit my mother.

b. *ámi khón tsum curúT mumánumo
(My mother was bitten by the ant.)

c. *ámi curúT mumánumo
(My mother was bitten.)

[43] I lack data to know if a passive of an uninflectible verb can have the auxiliary b 'to be' instead of manáas 'to become' when simple past or present tense is required, i.e. whether or not the following sentence is grammatical:

(xii)	?ú	dáfa	bám
	ú	dáfa	b-ám
	3p/ABS	drive.out	be-3ph/PAST

?They were driven out.

Knowing the answer to this question would be helpful later in section 6, when Burushaski auxiliaries are discussed.

[44] The postposition tsum does not only mark passive agents. The intransitive sentence in (xiii) below has no transitive counterpart. In this case tsum is not marking a passive agent but an oblique with the meaning 'by means of'. (The usual instrumental postposition is aTe 'on/with'.)

(xiii)	a.	bésan	cíiz	tsum	guírcaa	a
		bésan	cíiz	tsum	gu-ír-c-aa	a
		what	thing,y/ABS	by	2s-die-NONPAST-2s/FUT	QUEST

By means of what will you die?

(The particle a is the unstressed clause final question particle in Burushaski. It can follow nouns, verbs, adverbs, adjectives and other parts of speech.)

(45)	a.	jáa	ú	dáfa	ótam
		jé-e	ú	dáfa	ó-t-am
		1s-ERG	3p/ABS	drive.out	3p-do-1s/PAST

I drove them out.

b.	ú	dáfa	umánuman
	ú	dáfa	u-man'-uman
	3p/ABS	drive.out	3p-become-3ph/PAST

They were driven out.

(46)	a.	jáa	ún	wazíire aazáme	kaa	Thúmuk	gótam
		jé-e	ún	wazíire aazám-e	kaa	Thúmuk	gó-t-am
		1s-ERG	2s/ABS	prime.minister,m-OBL	with	introduce	2s-do-1s/PAST

I introduced you to the Prime Minister.

b.	ún	wazíire aazáme	kaa	Thúmuk	gumánuma
	ún	wazíire aazám-e	kaa	Thúmuk	gu-man'-uma
	2s/ABS	prime.minister,m-OBL	with	introduce	2s-become-2s/PAST

You were introduced to (met) the Prime Minister.

(47)	a.	íne	shishámuts	táq	ótumo
		ín-e	shishá-muts	táq	ó-t-umo
		3sh-ERG	window,x-PL/ABS	smash	3p-do-3f/PAST

She smashed the windows.

b.	shishámuts	(ínmo	tsum)	táq	umánie
	shishá-muts	ín-mo	tsum	táq	u-man'-ie
	window,x-PL/ABS	3sh-OBLf	by	smash	3p-become-3px/PAST

The windows were smashed (by her).

I propose a personal passive analysis for the (b) examples above. A diagram of (47b) is presented below (ignoring the issue of the auxiliary verb - see section 6).

(48)	2	1	P
	1	Cho	P
	shishámuts	ínmo tsum	táq umánie
	windows	by her	they became smashed

Under this analysis shishámuts *windows* is a 2 in an initial transitive stratum and advances to 1. The initial 1, ín *she*, is put en chômage and assumes the Chômeur relation.[45] This analysis however, introduces a number of problems with the verb agreement and case marking rules as formulated in (37) and (38).

First, the verb agreement rules in (37) are no longer adequate. Rule (37a) states that the verb agrees with nuclear terms. Both nominals in (48) (shishámuts *windows* and ín *she*) head nuclear term arcs, but the auxiliary umánie *they become* shows agreement only with shishámuts. Also, verb agreement rule (37b) states that a nominal heading a 1 arc determines subject agreement. In *she* heads an initial 1 arc but does not determine this agreement. If these rules are revised as in (49) below, all of the agreement facts presented here are accounted for, as well as those presented in previous sections.

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[45] Chômeur in French means 'unemployed'. A nominal which is put en chômage is no longer available to assume any grammatical relation or to participate in any grammatical relation changing construction.

(49) Verb agreement rules (working version b)

a. The verb agrees with final nuclear terms.

b. A final nuclear term which heads a 1 arc (in any stratum) determines subject agreement.

c. A final nuclear term which heads a 2 arc (in any stratum) determines object agreement.

Shishámuts *windows* is a final nuclear term and therefore qualifies to trigger verb agreement. As a 1 it determines subject agreement and as a 2 it determines object agreement, just as we saw with nominals that undergo unaccusative advancement.[46] The constraint that the verb agrees only with final nuclear terms blocks the 1-chômeur from triggering subject agreement.

The case marking rules in (38) also need revision. The fact that the 1-chômeur in (48) (ín *she*) occurs in OBL case and is followed by the postposition tsum needs to be stated. More importantly, case marking rule (38d) states that any nominal which is an ergative in a non-future tense clause is marked with ERG case. In *she* is an initial ergative and the verb is in the past tense, yet this nominal is not marked by ERG case. Again, if the pertinent rules are revised as follows, all of the agreement facts presented here are accounted for, as well as those presented in previous sections.

(50) Case marking rules (working version b, partial list)

b. A nominal which is a 1-chômeur or which heads a Source arc is flagged with the postposition tsum.

d. A nominal which is an ergative and heads only a 1 arc in a non-future tense clause is marked by ERG case.[47]

The constraint that a nominal be an ergative and head only a 1 arc blocks ERG case marking for the initial 1 of a passive. In *she* is an initial ergative, but since it heads a final chômeur arc it is not marked by ERG case. Since it is a 1-chômeur it is followed by the postposition tsum. (The 1-chômeur is optional in this case, though with many other verbs it is either disallowed or marginally acceptable.) Shishámuts *windows* is unmarked (in ABS case) by default and occurs sentence initially since it is the final subject.

4.2.2. Passives of uninflectible verbs with no object agreement

Recall from section 2 that with many verbs without a d- prefix, "y" class nouns do not trigger object agreement (there is no agreement prefix). This is true also for the auxiliary verb manáas *to become*. In unaccusative constructions with this verb, where an h or "x" class initial 2 determines object agreement a "y" class initial 2 will not. Example set (25) from section 2 is repeated below.

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[46] An alternative analysis to account for the fact that shishámuts 'windows' determines object agreement on the auxiliary verb manáas *to become* will be presented in section 6. For the time being, the fact that shishámuts heads both a final nuclear term arc and a 2 arc is adequate to account for this.

[47] This constraint will also be necessary in the analysis of antipassive constructions in the next section. The notion 'final ergative' is insufficient because it fails to account for case marking in 2-3 retreat constructions (also discussed in section 5).

(51) a. sá lálam imánibim
sá lálam i-man'-ibim
sun.x/ABS shine 3sx-become-3sx/PSTPRF
The sun had shone.

b. GéniSh lálam manílum
GéniSh lálam man'-ilum
gold.y/ABS shine become-3sy/PSTPRF
The gold had glittered.

"Y" class initial 2s in passives of uninflectible verbs also do not trigger object agreement, as the following examples show.

(52) a. íne tshíl taDáq étimi.
ín-e tshíl taDáq é-t-imi
3sh-ERG water.y/ABS spill 3sy-do-3sm/PAST
He spilled the water.

b. tshíl (ín tsum) taDáq maními.
tshíl ín tsum taDáq man'-imi
water.y/ABS 3sh/ABS by spill become-3sy/PAST
The water was spilled (by him).

There is also a subset of "x" class plural nouns which trigger object agreement in active sentences with uninflectible verbs, yet do not do so in the corresponding passive sentences. I will call these nouns 'seeds' class nouns. I give some examples below.

(53) a. íne Gunó pháu ótimi
ín-e Gunó pháu ó-t-imi
3sh-ERG seed.xp/ABS scatter 3px-do-3sm/PAST
He scattered seeds.

b. Gunó (ín tsum) pháu manímie
Gunó ín tsum pháu man'-imie
seed.xp/ABS 3sh/ABS by scatter become-3px/PAST
Seeds were scattered (by him).

(54) a. jáa bukák shár ótam
jé-e bukák shár ó-t-am
1s-ERG beans.xp/ABS scatter 3px-do-1s/PAST
I scattered the beans (seeds).

b. bukák shár manímie
bukák shár man'-imie
beans.xp/ABS scatter become-3px/PRSPRF
The beans have become scattered.

In all these cases there is object agreement in the verb in the active clauses but no object agreement in the passive clauses.

In order to keep our object agreement rule in (49c) above, we need to add the following statement to the grammar:

(55) Nouns of the 'seeds' class do not determine object agreement on the auxiliary manáas.[48]

4.2.3. Passives of inflectible verbs

There is a class of inflectible verbs in Burushaski which have both 'active' and 'passive' forms. Most of these verbs begin with the d- prefix. In the active form, a stressed object agreement prefix comes between the d- and the verb root. This prefix shows person and number agreement with h and "x" class direct objects, and third person singular (but not plural - see section 2.3.3) agreement with "y" class direct objects. In the passive form an unstressed u- prefix occurs in this position and the first syllable of the root is stressed. I will refer to this u- prefix as the passive prefix.[49] Some of these verbs are listed in (56) below.

(56)	Active	Passive	Gloss
a.	désalaTas	dusálaTas	*wrap up*
b.	dímatas	dumátsas	*roll up*
c.	díqharas	duqháras	*split*
d.	díshunas	dushúnas	*untie*
e.	dítsikinas	dutshíginas	*hang up*
f.	ipháTaras	dupháTaras	*skin*
g.	déeNGuras	doóNGuras	*bend*
h.	déshayas	disháyas	*stop*
i.	iqháras	qaráas	*smash*
j.	dípirtsas	diphírtsas	*pull out*

There is some variation in the form of the passive prefix in (56). This is perhaps due to vowel harmony and other factors. The main point to be made here however, is that the passive verb always has this passive morpheme and does not show object agreement at all. Let me illustrate with some sentence examples.

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[48] This statement would eventually be broadened to include a number of verbs where 'seeds' class nouns pattern like "y" nouns in not triggering object agreement. Consider example (ix) below.

(ix) a. jáa ín iltánam
jé-e ín i-ltán-am
1s-ERG 3sh/ABS 3sm-beat-1s/PAST
I beat him.

b. jáa ún gultánam
jé-e ún gu-ltán-am
1s-ERG 2s/ABS 2s-beat-1s/PAST
I beat you.

c. doobíe gaTóN taními
doobí-e gaTóN ltan-ími
washerman-ERG clothing,yp/ABS beat-3sm/PAST
The washerman beat the clothes.

d. gúse makái tanúmo
gús-e makái ltan-úmo
woman-ERG corn,xp beat-3sf/PAST
The woman beat the corn.

In (ix.d) a 'seeds' class noun makái 'corn' does not trigger object agreement. (The l of ltánas 'to beat' deletes word-initially; it may also be analyzed as a separate prefix.) This is an idiosyncratic property of this verb; with most other inflectible verbs and with uninflectible verbs, makái does trigger object agreement. I do not know how many verbs there are in this class.

[49] In a broader context this could be called an intransitive prefix.

(57) a. hamíide haránC détsanai
hamíid-e haránC d-é-tshan-ai
Hamid-ERG pitchfork,y/ABS d-3sy-straighten-3sm/PRSPRF
Hamid has straightened the pitchfork.

b. haránC dutshánila
haránC d-u-tshán-ila
pitchfork,y/ABS d-PASS-straighten-3sy/PRSPRF
The pitchfork has been straightened.

(58) a. dasíne bamphú dépaltubom
dasín-e bamphú d-é-phalt-ubom
girl-ERG balloon,x/ABS d-3sx-burst-3sf/PSTPRF
The girl had burst the balloon.

b. bamphú (dasínmo tsum) dupháltibim
bamphú dasín-mo tsum d-u-phált-ibim
balloon,x/ABS girl-OBLf by d-PASS-burst-3sx/PSTPRF
The balloon had been burst (by the girl).

(59) a. shaafiáa makái dóshulubo
shaafiá-e makái d-ó-shul-ubo
Shafia-ERG corn,xp/ABS d-3px-shell-3sf/PRSPRF
Shafia has shelled the corn (from the cob).

b. makái dushólie
makái d-u-shól-ie
corn,xp/ABS d-PASS-shell-3px/PRSPRF
The corn has been shelled.

(60) a. íne jé dápaTarimi
ín-e jé d-á-phaTar-imi
3sh-ERG 1s/ABS d-1s-accomodate-3sm/PAST
He accommodated me.

b. jé dupháTaram
jé d-u-pháTar-am
1s/ABS d-PASS-accomodate-1s/PAST
I was accommodated.

(61) a. íne jé dápirtsimi
ín-e jé d-á-phirts-imi
3sh-ERG 1s/ABS d-1s-pull.out-3sm/PAST
He pulled me out.

b. jé diphírtsam.
jé d-u-phírts-am
1s/ABS d-PASS-pull.out-1s/PAST
I was pulled out.

If we account for this unstressed u- prefix by positing a personal passive analysis for the (b) examples above, the stratal chart for (58b) would have the following form:

(62)

2	1	P
1	Cho	P
bamphú	dasínmo tsum	dupháltimi
balloon	by the girl	it was burst

Bamphú *balloon* is a final nuclear term and also heads a 1 arc and thus determines subject agreement. Dasín *girl* is a 1-chômeur and is followed by the postposition tsum *from*.

The problem with this analysis is that bamphú fails to trigger object agreement, although it is both a final nuclear term (a subject) and heads a 2 arc. We can account for this by adding the following statement to the set of verb agreement rules presented thus far:

(63) The u- prefix registers passive on inflectible verbs and blocks object agreement.[50]

Passive morphology is indicated by the u- prefix on the verb dupháltimi *it was burst* and therefore blocks the occurrence of an object agreement prefix.[51]

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[50] Not every verb which begins with d- and the u- prefix necessarily has a corresponding active form. There is no corresponding transitive form of dupháreskinas *to spread* (as in 'a rash spreads'), i.e. *dépareskinas. Such verbs show no object agreement.

[51] An alternative to the personal passive analysis for the examples above is to posit an impersonal passive. Example (53b) under this analysis is presented below in diagram form.

(xv)

2	1	P	
Cho	1	P	2
Cho	Cho	P	1
bamphú	dasínmo tsum	dupháltimi	Dummy
balloon	by the girl	it was burst	

In this case a silent third person plural "y" class dummy comes in as 2 and puts the initial 2 en chômage and advances to 1. Burushaski would employ the brother-in-law option for subject agreement and therefore the features of the initial 2 are relevant for subject agreement. The dummy, since it heads both a final nuclear term arc and a 2 arc, triggers object agreement in the verb with the unstressed third person plural prefix u- (with allomorphs i-, oó- and Ø-).

In passives of uninflectible verbs, the auxiliary verb manáas *to become* is used. Since manáas never shows agreement with "y" class nouns (see discussion above), there is no prefix.

In this analysis, there is no 'passive' prefix and we need no constraint saying that passive morphology blocks object agreement. Object agreement is determined by independent principles relating to "y" class plural pronouns. The grammar would have to prohibit 'seeds' class nominals from being final 1s in passives.

One disadvantage of the impersonal passive analysis is that it fails to explain why the u- prefix would have allomorphic variation when showing agreement with a third person plural "y" class dummy, yet have no such variation when showing agreement with a third person plural h or "x" class 2 (direct object) of an unaccusative or transitive verb. I lack data to argue further for either of these two analyses.

It should be noted that neither personal nor impersonal passives interact with any other advancement or retreat constructions (i.e. not with 3-2 advancement, Source-2 advancement, 2-3 retreat, antipassive or inversion). Also, there are no impersonal passives of intransitive verbs.

4.2.4. An argument for passive based on equi

This section presents an argument supporting a passive analysis of these clauses. Specifically it supports the claim that the 'patient' is the final 1 of the clause.

In Burushaski, clausal complements of the verbs rái étas *to want*, pasán étas *to like* and faisalá étas *to decide* have verbs which occur in the infinitival form followed by the postposition r *to*.[52] When the subject of the complement is not coreferential with the subject of the main clause, it must appear overtly. When the two subjects are coreferential the complement subject may not appear overtly. Some examples follow.

(64)	a.	jáa	ún	níasa	r	rái	écabaa
		jé-e	ún	ní-as-e	r	rái	é-t-c-abaa
		1s-ERG	2s/ABS	go-INF-OBL	to	want	3sy-do-NONPAST-1s/PRES

I want you to go.

b.	jáa	níasa	r	rái	écabaa
	jé-e	ní-as-e	r	rái	é-t-c-abaa
	1s-ERG	go-INF-OBL	to	want	3sy-do-NONPAST-1s/PRES

I want to go.

c. *jáa jé níasa r rái écabaa
(I want to go.)

---

[52] When the direct object is a complement clause, the complement verb is sometimes not followed by r *to*.

(xvi)	úe	dasíwants	míma	r	miúas	rái	ayécaan
	ú-e	dasín-ants	mí-e	r	mi-ú-as	rái	a-é-t-c-aan
	3p-ERG	girl-PL/ABS	1p-OBL	to	1p-give,h-INF	want	NEG-3sy-do-NONPAST-3ph/PRES

They do not want to give girls to us (in marriage).

I do not understand the conditions on the presence or absence of r in these cases, but it does not appear to be relevant to the discussion of equi in this section.

Sometimes in sentences with rai *to want*, the matrix subject is a possessor and the auxiliary b *to be* or manáas *to become* is used in the main clause. The complement may or may not be followed by r *to*.

(xvii)	a.	ámine	gánas	rái	bilá	ké
		ámin-e	gán-as	rái	b-ilá	ké
		RELhs-ERG	take,y-INF	want	be-3sy/PRES	COMP

Whoever wants to take (it)... (Lit. Whoever's desire to take is...) .

b.	úu	úmie	búT	rái	meíbila	ziaadátar
	u-u	u-mi-e	búT	rái	man'-c-bila	ziaadátar
	3p-father	3p-mother-ERG	much	want	become-NONPAST-3sy/FUT	usually

Their father and mother will usually want very much (to choose partners for their children).
(Lit. Their father's and mother's great desire usually will be.)

Rái *to want* can also occur in an inversion construction as is shown below (see section 5 for discussion of inversion in Burushaski).

(xviii)	ágar	úa	r	rái	bilá	ké
	ágar	ú-e	r	rái	b-ilá	ké
	if	3p-OBL	to	want	be-3sy/PRES	COMP

If they want to...

This condition is commonly called 'Equi', and rules are typically formulated in grammars based on what coreferential nominals cannot appear overtly in the subordinate clause, i.e. what nominals are equi 'victims'. The following example shows that 2s are not equi victims in Burushaski.

(65) gúse híre in mudélasa r
gús-e hír-e ín mu-del-as-e r
woman-ERG man-ERG 3sh/ABS 3sf-hit-INF-OBL to

rái ayécubo
rái a-é-t-c-ubo
want NEG-3sy/PRES-do-NONPAST-3sf/PRES
The woman doesn't want the man to hit her.

In (65) in *her* is the 2 of the complement clause and it is not an equi victim.

The following sentences show that the 'Patient' nominal in a passive complement clause is an equi victim. (66a) is a monostratal transitive clause; jé *I* is a 2. (66b) is the passive counterpart of this sentence in which the initial 2 has advanced to 1.

(66) a. políise jé bán átuman
políis-e jé bán á-t-uman
police-ERG 1s/ABS imprison 1s-do-3ph/PAST
The police imprisoned me.

b. jé bán amánam
jé bán a-man'-am
1s/ABS imprison 1s-become-1s/PAST
I was imprisoned.

(67a,b) show that when this passive clause is the complement of rái *want*, jé *I* may not appear overtly, as would be predicted if jé is a final 1.

(67) a. jáa bán amánasa r rái ayétam
jé-e bán a-man'-as-e r rái a-é-t-am
1s-ERG imprison 1s-become-INF-OBL to want NEG-3sy-do-1s/PAST
I did not want to be imprisoned.

b. *jáa jé bán amánasa r rái ayétam
1s/ABS
(I did not want to be imprisoned.)

The examples below illustrate equi with an inflectible verb.

(68) a. íne ún dukópirtsimi
ín-e ún d-go-phirts-imi
3sh-ERG 2s/ABS d-2s-pull.out-3sm/PAST
He pulled you out.

b. ún dipírtsuma
ún d-u-phirts-uma
2s/ABS d-PASS-pull.out-2s/PAST
You were pulled out.

c.	úne	dipírtsasa	r	rái	ayétuma
	ún-e	d-u-phirts-as-e	r	rái	a-é-t-uma
	2s-ERG	d-PASS-pull.out-INF-OBL	to	want	NEG-3sy-do-3sm/PAST

You didn't want to be pulled out.

d. *úne ún dipírtsasa r rái ayétuma
(You did not want you to be pulled out.)

Example (68a) shows a monostratal clause in which ún *you* is the direct object. (68b) is a passive clause in which ún is a final subject. In (68c) this nominal is not present due to equi; its arc is 'erased'. (68d) shows that when this nominal is present the result is ungrammatical.

When a matrix clause with an equi controlling verb (such as rái *to want*) contains a complement with a passivized verb (whether inflectible or uninflectible), the 'patient' in the complement is an equi victim. This, together with the verb agreement facts noted earlier, provides evidence that the 'patient' in a passive clause is a final 1.

4.3. Source-2 advancement

As noted in section 1, an object agreement prefix can be determined by a Source nominal.

(69)	hilése	dasínmo	tsum	pén	mushíirimi
	hilés-e	dasín-mo	tsum	pén	mu-shíir-imi
	boy-ERG	girl-OBLf	from	pen,x/ABS	3sf-snatch-3sm/PAST

The boy snatched the pen from the girl.

This sentence would be grammatical without the Source nominal being present; if present, the Source is flagged with the postposition tsum *from*. The agreement prefix is obligatory and indicates the Source.[53] In no case can object agreement be with pén *pen*.

These facts can be accounted for by positing obligatory Source-2 advancement for the verb shíiras *to snatch*. Example (69) is presented below in chart form:

(70)	1	Source	2	P
	1	2	Cho	P
	hilése	dasínmo tsum	pén	mushíirimi
	boy	from the girl	pen	he snatched (from) her

In the Source-2 advancement analysis there are two different nominals heading 2 arcs. Only dasín *girl* is a final nuclear term however, and therefore it and not pén *pen* determines object agreement. Dasín also heads a Source arc and is followed by the postposition tsum *from*. Hilés *boy* is a final 1 so it triggers subject agreement. It also is an ergative and heads only a 1 arc, so it is marked with ERG case. As a 2-chômeur, pén is unmarked.

With the verb shíiras *to snatch*, Source-2 advancement is obligatory. With at least one other verb it is optional.[54] The most common usage of the verb duGárusas *to ask* is in a monostratal clause such as in (71).

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[53] If a Source is not implied, another verb is used, such as GaJám étas *to grab* or tshúas *to take*.

[54] The verb dúmaras *to request* also allows a Source-2 construction.

(xix)	a.	jáa	ún	tsum	bésan	dúmaram
		jé-e	ún	tsum	bésan	d-mar-am
		1s-ERG	2s/ABS	from	something/ABS	d-request-1s/PAST

I requested something from you.

(71)	búT	sise	(hamíid	tsum)	sawáaliN	duGárusuman.
	búT	sis-e	hamíid	tsum	sawáal-iN	d-Garus-uman
	many	people-ERG	Hamid/ABS	from	question,y-PL/ABS	d-ask-3ph/PAST

Many people asked questions (of Hamid).

This sentence is straightforwardly accounted for by the rules proposed thus far if it is analyzed as a monostratal clause.

(72) 1	Source	2	P
búT síse	Hamíid tsum	sawáaliN	duGárusuman
many people	from Hamid	questions	they asked

There is no object agreement with "y" class direct object sawáaliN *questions*; the form of this verb in this construction remains constant, whether one or several questions are being asked.[55] The verb duGárusas is similar in this way to some other transitive verbs which require direct objects that are "y" class nouns and allow no agreement prefix, such as sénas *to say*, Gatánas *to read*, and girmínas *to write*.[56] The verb duGárusas *to ask* also occurs in sentences such as the following:

(73)	búT	síse	hamíid	sawáaliN	déGurusuman.
	búT	sis-e	hamíid	sawáal-iN	d-é-Garus-uman
	many	people-ERG	Hamid/ABS	question,y-PL/ABS	d-3sm-ask-3sm/PAST

Many people questioned Hamid.

Two things are different in this example. One is that the verb agrees with hamíid *Hamid* as direct object. Second, hamíid is in ABS case.[57] Assuming Source-2 advancement, we could diagram (73) as follows.

---

b.	jáa	ún	tsum	bésan	dukómaram
					d-gó-mar-am
					d-2s-request-1s/PAST

I requested you something.

The sense in example (xix.b) seems to be that I am requesting something from you for your benefit. This usage is very limited however, and is not acceptable to some speakers.

[55] It is unclear what the u- after the d- prefix is doing in the form duGárusuman *they asked*. It is possibly simply inserted epenthetically to break up the disallowed dG consonant cluster.

[56] Some other transitive verbs which do not allow an object agreement prefix are mináas *to drink*, hikínas *to learn*, thías *to pour*, wáaras *to cover*, and Garkáas *to catch*. These verbs usually occur in monostratal clauses and require objects of the "y" class, which may explain the lack of an agreement prefix. (One of them, Garkáas *to catch*, may allow an "x" class object. I have an example of this verb in a sentence with tharií *ball* as the direct object. tharií is an "x" class noun.)

[57] I have a few examples in my data where, when this verb is showing agreement with the Source, the Source nominal is followed by the postposition tsum *from*. In most cases however it occurs in ABS case. In elicitation also, ABS was given as the proper case for the Source when this verb agrees with it. For the cases where the Source postposition is allowed, the rule in (75) would have to be marked as optional.

(74)				
	1	Source	2	P
	1	2	Cho	P
	búT síse	hamíid	sawáaliN	déGurusuman
	many people	Hamiid	questions	they-asked-him

Now hamíid is a final 2 and triggers object agreement. Since hamíid is not followed by the postposition tsum *from* however, the rule for this marker must be revised to prohibit it when the nominal heading a Source nominal in a clause with duGárusas *to ask* also heads a final 2 arc.

This rule now has the following form:

(75) A nominal which is a 1-chômeur, or which heads a Source arc (and is not the final 2 of duGárusas) is flagged with the postposition tsum.[58]

4.4 3-2 advancement

Burushaski has at least five verbs that take recipients.[59] One of these, the uninflectible verb píish *to present*, was shown in section 3, example (34) in a monostratal clause and is shown here as (76).

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[58] Alternatively, it could be said that tsum *from* flags final Sources, and that shiíras *to snatch* idiosyncratically flags its final 2 with tsum. This would then be an instance of quirky case marking associated with this verb.

The case marking rule stated in (75) on the other hand expresses a generality which applies not only to the marking of Sources, but also to the marking of indirect objects and Possessors. What these rules have in common is that none of them make reference to the levels at which a nominal bears these relations. If a nominal heads one of these arcs at any level, it receives the appropriate marking. More will be said about the case marking of indirect objects and Possessors in the next section and in section 7.

[59] There are other constructions in which initial indirect objects occur, however. There is a set of verbal nouns which are followed by the auxiliary verb étas *to do*. Some examples follow.

(xx)						
	a.	gusé	tharmása	r	sháN	é
		gusé	tharmás-e	r	sháN	é-t-0
		DEM3xs	thermos-OBL	to	care,y	3sy-do-IMP
		Take care of this thermos!				
	b.	jáa	qhudáaya	r	shúkuro	étam
		jé-e	qhudáa-e	r	shúkuro	é-t-am
		1s-ERG	God-OBL	to	thanks,y	3sy-do-1s/PAST
		I thanked God (Lit., I did thanks to God.)				
	c.	jáa	úa	r	Sháu	étam
		jé-e	ú-e	r	Sháu	é-t-am
		1s-ERG	3p-OBL	to	slap,y	3sy-do-1s/PAST
		I slapped them. (Lit., I did a slap to them.)				

The verbal noun is the direct object of the clause; it always triggers third person "y" class object agreement (using the prefix é-) and occurs in ABS case. The thing being acted upon is the indirect object and is followed by the postposition r *to*. This nominal can never trigger agreement in the auxiliary étas as the following example shows.

(76)	hilése	dasinmo	r	toofámuts	piish	ótimi.
	hilés-e	dasin-mo	r	toofá-muts	piish	ó-t-imi
	boy-ERG	girl-OBLf	to	gift,x-PL/ABS	present	3px-do-3sm/PAST

The boy presented a gift to the girl.

The initial/final direct object triggers verb agreement and occurs in ABS case while the initial/final indirect object is followed by the postposition r *to*. However four other verbs which take recipients obligatorily follow a different pattern. Consider the following sentences.

(77)	a.	jáa	inmo	r	hán	cáGan	mósabayam.
		jé-e	in-mo	r	hán	cáGa-an	mó-s-abayam
		1s-ERG	3sh-OBLf	to	one	story,y-INDEF/ABS	3sf-tell-1s/PRSPRF

I have told her a story.

b.	jáa	inmo	r	hán	gitáapan	muchíabayam
	jé-e	in-mo	r	hán	gitáap-an	mu-chí-abayam
	1s-ERG	3sh-OBLf	to	one	book,ys-INDEF/ABS	3sf-give,ys-1s/PRSPRF

I have given her a gift.

c.	jáa	inmo	r	káman	brás	muGúnabayam.
	jé-e	in-mo	r	káman	brás	mu-Gún-abayam
	1s-ERG	3sh-OBLf	to	some	rice,yp/ABS	3sf-give,yp-1s/PRSPRF

I have given her some rice.

d.	jáa	inmo	r	hán	tofáan	muúwabayam.
	jé-e	in-mo	r	hán	toofá-an	mu-ú-abayam
	1s-ERG	3sh-OBLf	to	one	gift,x-INDEF/ABS	3sf-give,x-1s/PRSPRF

I have given her a gift.

The difference between these sentences and the one in (76) is in the object agreement on the verb. Rather than showing agreement with the patient, the verb shows agreement with the recipient. Positing obligatory 3-2 advancement for these verbs, we could diagram (77d) as follows.

(78)	1	3	2	P
	1	2	Cho	P
	jáa	inmo r	hán tofáan	muúwabayam
	I	to her	a gift	I have given her

Under this analysis, of the two nominals heading 2 arcs, only inmo *her* is a final nuclear term and therefore it and not hán tofáan *a/one gift* properly triggers direct object agreement on the verb. The generalization given in (38a) also accounts for the presence of the postposition r *to* since it does not refer to any particular level. Inmo heads a 3 arc; therefore the postposition r must occur.

(xxi)	*jáa	úa	r	Sháu	ótam
	jé-e	ú-e	r	Sháu	ó-t-am
	1s-ERG	3p-OBL	to	slap,y	3p-do-1s/PAST

(I slapped them.)

These verbal noun plus étas *to do* constructions are not the same syntactically as clauses with uninflectible verbs plus auxiliaries such as those illustrated in section 3, example (34) and discussed in section 6.

4.5 *Benefactive-3 advancement*

The postposition gáne most often follows a verb in the infinitive form and indicates Purpose, as in the following example.

(79)	zamindáar	tshíl	yálase	gáne	mála	r	ními.
	zamindáar	tshíl	yál-as-e	gáne	mál-e	r	ní-imi
	farmer.m/ABS	water.y	apply-INF-OBL	for	field.y-OBL	to	go-3sm/PAST

The farmer went to the field to water (it).

However gáne can also mark Benefactives.

(80)	jáa	úne	gáne	cái	tayáar	étam.
	jé-e	ún-e	gáne	cái	tayáar	é-t-am.
	1s-ERG	2s-OBL	for	tea.y/ABS	prepare	3sy-do-1s/PAST

I prepared tea for you.

Although the sentence in (80) is perfectly acceptable and would be used in certain contexts, the same idea is more commonly expressed this way:

(81)	jáa	góo	r	cái	tayáar	étam
	jé-e	gó-e	r	cái	tayáar	étam
	1s-ERG	2s-OBL	to	tea.y/ABS	prepare	3sy-do-1s/PAST

I prepared tea for you.

In (81) the second person nominal is marked with r *to* rather than gáne *for*.[60] Although the exact constraints on the usage of the constructions in (80) and (81) are unclear, positing Benefactive-3 advancement accounts for the difference in the two. (81) would be diagrammed like this:

(82)	1	Ben	2	P
	1	3	2	P
	jáa	góo r	cái	tayáar étam
	I	for you	tea	I prepared it

In order to block the postposition gane *for* and permit indirect object marking rule (38a) to operate, the case marking rules that refer to oblique relations would have the following additional line:

(83) A nominal heading a final Benefactive arc is flagged with the postposition gáne.

To summarize this section, I will gather together the current versions of the verb agreement and case marking rules that have been presented thus far.

(84) Verb agreement rules (working version c)

a. The verb agrees with final nuclear terms.

b. A final nuclear term which heads a 1 arc (in any stratum) determines subject agreement.

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[60] The shape of the second person pronoun in these two examples is different. In (80) the second person singular personal pronoun ún is used. In (81) the second person singular object agreement prefix gó- is used.

c. A final nuclear term which heads a 2 arc (in any stratum) determines object agreement.

(85) Case marking rules (working version c)

a. A nominal which heads a 3 arc (in any stratum) is flagged with the postposition r.

b. A nominal which is a 1-chômeur, or which heads a Source arc (in any stratum, and which is not the final 2 of duGárusas) is flagged with the postposition tsum.

c. A nominal which heads a POSS arc (in any stratum) is marked with OBL case.

d. A nominal which heads a final Benefactive arc is flagged with the postposition gáne.

e. A nominal which is an ergative and heads only a 1 arc (in any stratum) in a non-future tense clause is marked by ERG case.

f. The u- prefix registers passive on uninflectible verbs and blocks object agreement.

g. Nouns of the 'seeds' class do not determine object agreement on the verb manáas.

5. Retreats

In Relational Grammar terminology, a nominal 'retreats' when it bears two grammatical relations at successive levels in a clause, and the later relation is lower on the relational hierarchy (1 > 2 > 3 > nonterms). Burushaski has three retreat constructions: 2-3 retreat, inversion, and antipassive.

5.1. 2-3 retreat

The verb Garáas *to talk (badly)* can appear in two types of clauses. When there is an addressee, the agent is marked by ERG case and the addressee is followed by the postposition r *to*.

(86) íne hilése r Garícubo
ín-e hilés-e r Gar'-c-ubo
3sh-ERG boy-OBL to talk.badly-NONPAST-3sf/PRES
She scolds the boy.

If either ín *she* or hilés *boy* in (86) were in ABS case, the entence would be ungrammatical. However, when there is no addressee, the agent does occur in ABS case.

(87) ín búT Garícubo
ín búT Gar'-c-ubo
3sh/ABS much talk.badly-NONPAST-3sf/PRES
She curses a lot.

To analyze both of these sentences as being monostratal, (86) with a 1 and a 3 and (87) with only a 1, would fail to account for the ERG case marking of in *she* in (86). Positing obligatory 2-3 retreat for clauses containing Garáas *to talk (badly)* which have initial addressees could provide a solution. The example sentences above would be diagrammed this way:

(88) a.

1	P
in she	Garícubo curses

b.	1	2	P
	1	3	P
	ine	hiléser	Garícubo
	she	to the boy	scolds

In this analysis, when an addressee is present in a clause containing Garáas, it is obligatorily demoted to 3 and is therefore necessarily followed by the postposition r. Since no nominal heads both a final nuclear term arc and a 2 arc, there is no object agreement on the verb. The agent in (88b) is an ergative heading only a 1 arc and is thus marked with ERG case.

Another verb which might be analyzed as requiring a 2-3 retreat construction is barénas *to look*. Consider the following example.

(89)	jáa	úna	r	mál	ulo	barénam
	jé-e	ún-e	r	mál	ulo	barén-am
	1s-ERG	2s-OBL	to	field.y/ABS	in	look.at-1s/PAST

I looked at you in the field.

Whenever a stimulus is present in a clause with barénas, it must be followed by the postposition r *to* and the experiencer must be marked with ERG case. The verb never allows an agreement prefix (except when causativized - see section 8). If we assume a 2-3 retreat analysis for (89), ún *you* is a 3 and is thus followed by the postposition r. Since it is not a final nuclear term, it does not trigger object agreement. Jé *I* is an ergative heading only a 1 arc and receives ERG case marking.

One possible problem with an obligatory 2-3 analysis for clauses with barénas *to look* however comes from sentences without a stimulus present. In the examples in my data, when barénas is used without a stimulus, but with an adverb, as in 'to look up', the subject is still marked with ERG case.

(90)	béshal	hamíide	yáTne	barénimi	ké
	béshal	hamíid-e	yáTne	barén-imi	ké
	when	Hamid-ERG	upwards	look.at-3sm/PAST	COMP

When Hamid looked up ...

The simplest analysis for the sentence in (90) is as a monostratal unergative construction. This fails to account for the ERG case marking on hamíid *Hamid*, however. If barénas is lexically marked as requiring an initial 2, whether specified or not, we could keep a straightforward 2-3 retreat analysis. Example (90) is diagrammed below.[61]

(91)	1	2	Loc	P
	1	3	Loc	P
	hamíide	UN	yáTne	barénimi
	Hamid	UN	upwards	he looked

5.1.1. Two anomalies

There are two verbs which occur in constructions similar to 2-3 retreat, yet do not fit into the above analysis. These are gaTáas *to bite* and duúnas *to arrest*. Examples with these verbs are presented below.

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[61] I will ignore the actual structure of the predicate with the adverb yáTne *upward*, as it is not relevant to this discussion.

(92)	a.	jáa	báalt	tse	gaTáam
		jé-e	báalt	tse	gaT'-am
		1s-ERG	apple,x/ABS	onto	bite-1s/PAST

I bit the apple.

	b.	políise	jáa	tse	duúnimi
		políis-e	jé-e	tse	duún-imi
		policeman-ERG	1s-OBL	onto	arrest-3sm/PAST

The policeman arrested me.

Agents with these verbs must be marked by ERG case.[62] Patients must be followed by the postposition tse *onto*. They cannot occur in ABS case without this postposition and they cannot be followed by the postposition r *to*. There seem to be three choices for analysis of the examples in (92), each of which presents problems. The alternatives are diagrammed in (93).

(93)	a.	1	Mal	P
		políise	jáa tse	duúnimi
		policeman	onto me	he caught
	b.	1	Mal	P
		1	2	P
		políise	jáa tse	duúnimi
		policeman	onto me	he caught
	c.	1	2	P
		1	Mal	P
		políise	jáa tse	duúnimi
		policeman	onto me	he caught

Example (93a) gives no account for ERG case marking on the subject. Example (93b) gives no account for the lack of object agreement on the verb. Example (93c) violates the Oblique Law which requires that any nominals heading oblique arcs head them in the initial stratum. It is

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[62] There are two unergative verbs with subjects in ABS case, homophonous to gaTáas *to bite* and duúnas *to arrest*, which historically may be related yet synchronically appear in different constructions with different meanings. These are presented in the following examples.

(xxii)	a.	cháSh	oóTis	ulo	gaTílum
		cháSh	a-úTis	ulo	gaT'-ílum
		thorn,y/ABS	1s-foot,y/ABS	in	pierce-3sy/PSTPRF

The thorn had pierced my foot.

	b.	jóTisho	duúibaan
		jóT-isho	duún-c-baan
		young-PLhx/ABS	begin-NONPAST-3ph/PRES

The young ones begin.

These examples would best be analyzed as unergative monostratal clauses. However, duúnas *to begin* also occurs with subjects marked with ERG case when the thing begun is made explicit.

unclear which of these analyses (if any) is correct for clauses with duúnas and gaTáas. For the present, I assume that the subjects of these verbs are idiosyncratically marked with ERG case.[63]

To account for the agreement and case marking facts presented in this section, the rules presented at the end of the preceding section need no revision aside from an additional statement that Burushaski allows 2-3 retreat with a subset of verbs.

5.2 *Inversion*

Burushaski has a set of verbs similar to those described in Harris 1984:282 for Georgian and other languages, known as 'affective verbs' or 'psychological predicates'. These include yaqíin étas *to believe*, záp étas *to memorize*, leél étas *to know*, afsúus étas *to anguish*, rái étas *to want*, and qhaahísh étas *to wish*. The first three of these are shown in examples (94a-c).

(94) a.

úe	ité	yaqíin	ayécaan
ú-e	ité	yaqíin	a-é-t-c-aan
3p-ERG	DEM,3sy	believe	NEG-3sy-do-NONPAST-3ph/PRES

They don't believe that.

b.

jáa	Tók	gitáap	záp	étam
jé-e	Tók	gitáap	záp	é-t-am
1s-ERG	entire	book,y/ABS	memorize	3sy-do-1s/PAST

I memorized the entire book.

c.

teélaTe	muúyare	leél	écai
teélaTe	mu-úyar-e	leél	é-t-c-ai
in.that.way	3sf-husband-ERG	know	3sy-do-NONPAST-3sm/PRES

In that way her husband will know.

These sentences are straightforwardly analyzed as monostratal clauses with uninflectible verbs. These verbs can also occur in a different clause type.

(95) a.

ité	úa	r	yaaqín	apí
ité	ú-e	r	yaaqín	a-b-í
DEM,3sy	3p-OBL	to	believe	NEG-be-3sy/PRES

They don't believe that.

b.

Tók	gitáap	jáa	r	záp	bilúm
Tók	gitáap	jé-e	r	záp	b-ilúm
entire	book,y/ABS	1s-OBL	to	memorize	be-3sy/PAST

I memorized the entire book.

---

[63] In order to clarify the analysis of clauses with barénas *to look*, gaTáas *to bite*, and duúnas *to arrest*, it would be helpful to see some unergative Burushaski verbs which allow 3s, similar to the English verb *to sing*. Then we could see how the subject of such a verb is marked.

I have not found any such verbs however. For example, the Burushaski counterpart to the English unergative sentence *I sing to her* is either *I sing it to her* with the inflectible verb éGaras *to sing/play* showing agreement with what is sung or played, or *I do a song to her* with the verbal noun Gár *song* plus the auxiliary étas *to do* showing agreement with Gár. This latter structure is the pattern for the Burushaski equivalents of many English unergative verbs.

c.	ína	r	leél	apí	bésan	bilá	ké
	ín-e	r	leél	a-b-í	bésan	b-ilá	ké
	3sh-OBL	to	know	NEG-be-3sy/PRES	what	be-3sy/PRES	COMP

He does not know what it is.[64]

The sentences in (94) are superficially transitive. Those in (95) are superficially intransitive. The nominal which is sentence-initial and marked with ERG case in the examples in (94), is not sentence-initial and is followed by the postposition r *to* in the examples in (95). Also, the auxiliary étas *to do* in (94a-c) is replaced by b *to be* in (95a-c).[65]

In addition to the verbs just mentioned which can occur in both transitive and intransitive clauses, there is at least one other affective verb which can occur only in the second, intransitive clause type. This is the word for 'to need'.[66]

(96)	jáa	r	ité	gitáap	awaáji	bilá
	jé-e	r	ité	gitáap	awaáji	b-ila
	1s-OBL	to	DEMsy	book,y/ABS	need	be-3sy/PRES

I need that book.

---

[64] Leél *to know* can be used in several clause types in Burushaski. In addition to the examples in (94c) and (95c), it can occur in the passive substitute form with manáas *to become* as in the following example:

(xxiii)	leél	manáasa	r
	leél	man'-as-e	r
	know	become-INF-OBL	?

When it became known...

In this case the postposition r functions as a clause linking mechanism similar to the conjunctive participle -n and indicates that one action or state has been completed and another has begun, and both are interdependent. The difference between -n and -r is that -n signals same subject reference between the two clauses and -r signals switch reference.

Leél can also occur in an unaccusative construction where there is no direct object.

(xiv)	ágar	leél	umánuman	ké	ósqaibaan
	ágar	leél	u-man'-uman	ké	ó-sqan-c-baan
	if	know	3p-become-3ph/PAST	COMP	3p-kill-NONPAST-3ph/FUT

If they know, they will kill them.

Leél can also occur in an antipassive construction (see section 6.2).

[65] The auxiliary b *to be* is used for present and simple past tenses. The auxiliary manáas *to become* is used in cases where a non-present or non-past tense is required.

(xxv)	síruf	qhudáaya	r	leél	meíbila
	síruf	qhudáa-e	r	leél	man'-c-bila
	only	God-OBL	to	know	become-NONPAST-3sy/FUT

Only God will know.

The details of the tense distinctions involved with b and manáas are beyond the scope of this paper.

[66] It might be proposed that awaáji *to need* is an adjective in Burushaski meaning *necessary*. Awaáji does not act like Burushaski adjectives, however. It cannot modify nouns (éhem kées *important case* vs. *awaáji kées *necessary case*) and cannot be inflected for number (báarcuko gitáapiciN *red(s) books* vs. *awaáji- gitáapiciN [with no plural suffix allowed after awaáji]) as Burushaski adjectives generally can.

I suggest that the clauses in (95) and (96) be analyzed as inversion constructions. Informally, inversion is the name given to the construction in which a subject is demoted to indirect object (Harris 1984:279). In initially transitive clauses, the initial direct object advances to subject by unaccusative advancement. Inversion is a common feature of South Asian languages (Masica 1976:190) so it is not surprising to find it in Burushaski.

The inversion analysis of example (95b) is diagrammed in (97).

(97)	2	1	P	
	2	3	P	
	1	3	P	
	Tók gitáap	jáa r	záp	bilúm
	entire book	to me	memorize	it is

The cognizer (for (95b) heads a 3 arc and is followed by the postposition r.[67] Tók gitáap *the entire book* is a final 1 and determines subject agreement. It is also a 2, yet does not determine object agreement. In this case we could say that the verb b *to be* is defective in never allowing an agreement prefix of any sort. There is another possible analysis for this lack of agreement however, and this will be discussed in the next section.

5.2.1. The interaction of inversion with 3-2 advancement

The sentence in example (98) is somewhat similar to the inversion constructions that have been discussed in this section thus far.

(98)	óltalik	dishmíN	ulo	ína	r
	ó-ltalik	dish-míN	ulo	ín-e	r
	3p-both	place,y-PL/ABS	in	3sh-OBL	to

sawáabkuSh	déeGurshai.
sawáabkuSh	d-ée-Gurk-c-ai
reward,y/ABS	d-3sm-find-NONPAST-3sm/PRES

In both places he will find reward.

The Experiencer is followed by the postposition r *to* and occurs before the Patient. The difference between example (98) and those in (95) and (96) above is that the d- prefix verb déeGurkas *to find* is used instead of the verb b *to be*. This verb also has an object agreement prefix that cross-references the Experiencer. If we posit inversion followed by 3-2 advancement and unaccusative advancement for déeGurkas, we can account for these facts. Sentence (98) is diagrammed below.

---

[67] When under emphasis, indirect objects may be followed by a simple coreferential stressed object agreement prefix which is in turn followed by the postposition r *to*. In some cases both forms are possible. In the sentences below both forms occur, although either form may be deleted.

(xxvi)	a.	tó	úna	r	góo	r	leél	bilá	ké
		tó	ún-e	r	gó-e	r	leél	b-ilá	ké
		so	2s-OBL	to	2s-OBL	to	know	be-3sy/PRES	COMP

So you know that...

b.	khína	r	ée	r	barén
	khín-e	r	é-e	r	barén
	DEM3sh.prx-OBL	to	3sm-OBL	to	look/IMP

Look at him!

(99)

Loc	1	2	P
Loc	3	2	P
Loc	2	Cho	P
Loc	1	Cho	P
óltalik dishmíN ulo	ína r	sawáabkuSh	déeGurshai
in both places	to him	reward	he will find

The pronoun in *he* is a final nuclear term. As a 1 it triggers subject agreement, and as a 2 it triggers object agreement. Since it heads a 3 arc, it is followed by the postposition r. SawáabkuSh, *reward* as a 2-chômeur is unmarked.[68]

5.3. *Antipassive*

A construction that is frequently discussed in the literature on languages with ergative morphology is antipassive. It is commonly understood to be a structure that has been 'detransitivized'. Postal (1977) made the claim based on French that antipassives are constructions in which an initial subject retreats to direct object, and then advances to subject again by unaccusative advancement in conformity to the final 1 law. The stratal chart for such a construction has the following form.

(100)

1	2	P
2	Cho	P
1	Cho	P
x	y	z

Evidence from Choctaw was provided by Davies (1984a) to support this analysis. Burushaski also has an antipassive construction. It is governed by a small set of verbs and is obligatory in most, but not all cases.

The dozen or so verbs that govern antipassive in Burushaski repeatedly occur in clauses that have both transitive and intransitive characteristics. They are similar to unaccusative verbs in that their subjects, which occur sentence-initially, occur in ABS case and determine both subject and object agreement. They are similar to transitive verbs however, in that they require an ABS marked 'Patient' nominal to be present in the preverbal position that is typical for direct objects. Some examples are presented in (101).

(101) a.

jé	káman peesá	dácanabaa
jé	káman peesá	d-á-can-abaa
1s/ABS	some money,x/ABS	d-1s-need-1s/PRES

I need some money.

b.

óltalik	dishmíN	ulo	ín
ó-ltalik	dish-míN	ulo	ín
3p-both	place,y-PL/ABS	in	3sh/ABS

---

[68] The verb déeGurkas *to find* occurs in the type of clause described here with the experiencer followed by the postposition r *to*. It also occurs with the experiencer in ABS case with no postposition; a construction that I analyze in the next section as antipassive.

sawáabkuSh	déeGurshai
sawáabkuSh	d-ée-Gurk-c-ai
reward,y/ABS	d-3sm-find-NONPAST-3sm/PRES

In both places he will find reward.[69]

c.	jé	ué	tsum	búT	peesá	ayáyam
	jé	ué	tsum	búT	peesá	a-yá-am
	1s/ABS	DEMhp	from	much	money,x/ABS	1s-obtain-1s/PAST

I obtained much money from them.

d.	jé	qhabár	dáyalam.
	jé	qhabár	d-á-yal-am
	1s/ABS	news,y/ABS	d-1s-hear-1s/PAST

I heard the news.

An antipassive analysis of the clauses in (101) accounts for all of the characteristics mentioned in the preceding paragraph. Example (101d) is diagrammed below.

(102)	1	2	P
	2	Cho	P
	1	Cho	P
	jé	qhabár	dáyalam
	I	news	I heard

Jé *I* is a final nuclear term. As a 1 it triggers subject agreement. As a 2 it determines object agreement. It heads an ergative arc but also a 2 arc and so is not marked with ERG case. Qhabár *the news* is unmarked.

5.3.1. The interaction of 2-3 retreat and antipassive

The verb déwaranas *to want* occurs in clauses that are similar to antipassives.[70] Some examples of this verb are provided in (103).

(103)	a.	jé	úne	zamíina	r	dáwaranabaa.
		jé	ún-e	zamíin-e	r	d-á-waran-abaa
		1s/ABS	2s-OBL	land,xs-OBL	to	d-1s-want-1s/PRSPRF

I have wanted your land.

b.	jé	Shapíka	r	dáwaranabaa.
	jé	Shapík-e	r	d-á-waran-abaa
	1s/ABS	food,y-OBL	to	d-1s-want-1s/PRSPRF

I have wanted food.

Clauses with déwaranas can only occur with their experiencers in ABS case and the 'object of desire' followed by the postposition r *to*. A simple antipassive analysis would be possible were it not for the presence of this postposition. This can be accounted for though, if we posit obligatory 2-3 retreat and antipassive for this verb. The diagram of (103a) would have the following form:[71]

---

[69] This example shows the antipassive option for the verb déeGurkas *to find* that was discussed in the previous section. DéeGurkas can alternatively occur in clauses with inversion followed by 3-2 advancement.

[70] Déwaranas means to want or need something enviously or covetously. Décanas and awaáji mean *to need* in general.

(104)	1	2	P
	1	3	P
	2	3	P
	1	3	P
	jé	úne zamíina r	dáwaranabaa
	I	to your land	I have wanted

The pronoun jé *I* is the final subject and triggers subject agreement; it is a 2 and triggers object agreement. Un *you* heads a possessor arc and is marked with OBL case while zamíin *land* heads a 3 arc and is followed by the postposition r *to*.

6. Multi-predicate constructions

Thus far in this paper, I have referred to several elements which combine with uninflectible verbs, verbal nouns, predicate nominals and predicate adjectives to form predicates in Burushaski. These include the auxiliaries étas *to do* and manáas *to become* and the copula b *to be*. In this section I will discuss the forms of these auxiliaries and copula, some conditions on their usage, and their agreement properties.

The Relational Grammar account of these phenomena has traditionally been a clause union analysis where all of the dependents of an embedded clause become dependents of the matrix verb. A number of proposals and counterproposals have been advanced to characterize union constructions universally.

Recently, in Davies and Rosen (1988), it is argued that the constructions that have been analyzed as clause union are actually monoclausal multi-predicate clauses. Under this analysis, what was considered the embedded clause 'occupies the early strata' in the relational network and what was considered the union clause occupies the later strata. There are multiple 'P-sectors' in which different predicates bear the P relation. Predicates in lower (later) strata put predicates in higher (earlier) strata en chômage.

This multi-predicate analysis of clause union is the one that I adopt in this section on Burushaski auxiliaries, and in section 8 on causatives. I will discuss the syntax of the copula b *to be* first, followed by that of manáas *to become* and étas *to do*.

6.1. The copula b to be

The copula b *to be* occurs most often in predicate nominal and predicate adjective constructions. An example of each follows.

---

[71] Or, the diagram could appear this way:

(xxvii)	1	2	P
	2	3	P
	1	3	P
	jé	úne zamíina r	dáwaranabaa
	I	to your land	I have wanted

(105) jé hír báa
jé hir b-áa
1s/ABS man/ABS be-1s/PRES
I am a man.

(106) in shwá bái
in shwá b-ái
3sh/ABS good be-3sm/PRES
He is good.

These constructions are typically stative in nature and therefore one would perhaps assume an unaccusative analysis for them. However, unlike unaccusative verbs, b never allows an agreement prefix. There are at least two ways to account for this fact. First, we could simply state that the auxiliary b is indeed unaccusative, but is morphologically defective in that it never allows an agreement prefix. While this analysis describes the facts regarding object agreement with b *to be*, it provides no explanation for them.

Alternatively, we could assume that clauses with b *to be* are multi-predicate constructions in which the copula is the predicate in a final P-sector in which there is no 2 to trigger object agreement. Under this multi-predicate analysis, the Burushaski copula is an unergative verb (unergative verbs never allow agreement prefixes unless causativized - see section 8). While this goes against the general tendency in Burushaski (and cross-linguistically) that unergative verbs imply volition or action, it is not ruled out by any constraints in Relational Grammar. (105) in this analysis is displayed in table form in (107).[72]

(107) 2 P (P-sector)
1 P
- - - - - - - - - -
1 Cho P (P-sector)

jé hír báa
I man I am

In (107) there are two P-sectors. The predicate of the initial P-sector is hír *man* which I propose is unaccusative. The initial stratum of the clause is the P-initial stratum for this predicate. Unaccusative advancement occurs in the initial P-sector and the second (unergative) stratum is the P-final stratum for hír. The third stratum is both the P-initial and P-final stratum for the predicate báa *I am*. Since this stratum is unergative, there is no agreement prefix on the copula.

The analysis of a predicate adjective construction is essentially the same. The diagram for (106) is presented in (108) below.

(108) 2 P (P-sector)
1 P
- - - - - - - - - - -
1 Cho P (P-sector)

in shwá bái
he good he is

---

[72] Dotted lines are used in the tabular diagrams to separate P-sectors.

In this case the predicate in the initial P-sector is the unaccusative predicate adjective shwá *good*. 2-1 advancement occurs in the initial P-sector. Bái *he is* is an unergative predicate in the final P-sector and therefore shows no object agreement.

The multi-predicate analysis for clauses with b also helps to clarify our understanding of inversion constructions with this auxiliary.[73] Consider the following example once again (from section 5).

(109)	Tók	gitáap	jáa	r	záp	bilúm
	Tók	gitáap	jé-e	r	záp	b-ilúm
	entire	book,y/ABS	1s-OBL	to	memorize	be-3sy/PAST

I memorized the entire book.

The verb agreement and case marking rules proposed in (84) and (85) at the end of section 4 are adequate to account for all of the facts of example (109) except for the lack of object agreement on the auxiliary b *to be*. As a nominal that is a final 1 and also heads a 2 arc, Tók gitáap *entire book* should trigger this agreement, yet it does not. However, under the multi-predicate analysis this lack of agreement is predicted. The diagram for this clause is presented below.

(110)	2	1	P		(P-sector)
	2	3	P		
	1	3	P		
	- - - - - -	- - - - - -	- - - - - -		
	1	3	Cho	P	(P-sector)
	Tók gitáap	jáa r	záp	bilúm	
	entire book	to me	memorize	it was	

Záp *memorize* shows no agreement because it does not bear the P relation in the final P-sector. The auxiliary b shows no object agreement because there is no 2 in the final P-sector. Tók gitáap *entire book* is a final 1 and therefore b shows appropriate subject agreement.[74]

At least two grammatical relation changing constructions are seen to occur in the initial P-sector of a clause with the auxiliary b, inversion and unaccusative advancement. Both of these require 2-1 advancement, which occurs in the initial P-sector. In the multi-predicate analysis, the following statements need to be added to the verb agreement rules presented thus far:

(111) a. Verb agreement is determined by the GRs that nominals bear in the final P-sector of a clause.

b. Nouns, adjectives and uninflectible verbs cannot bear the P relation in the final P-sector.

c. Select the auxiliary b if and only if:
   i. there is 2-1 advancement in the initial P-sector, and
   ii. the clause is finally unergative.

---

[73] I will refer to the Burushaski copula as an auxiliary from now on.

[74] In section 5, footnote 56, an example was given of a sentence with inversion which used the uninflectible verb leél *to know* and the auxiliary manáas *to become* in the future tense with no object agreement prefix. I assume that the analysis for such a sentence is the same as that proposed in this section. Lack of object agreement on manáas in this case is because the *thing known* is an abstract entity which functions as a "y" class nominal; manáas never shows agreement with "y" class nominals.

6.2 *The auxiliary manáas* to become

The auxiliary manáas *to become* is frequently used with unaccusative and unergative verbs, as well as with predicate nominals and predicate adjectives. (112) is an example with an unaccusative verb, along with the appropriate diagram.

(112)	a.	ín	dádar	imánimi
		ín	dádar	i-man'-imi
		3sh/ABS	tremble	3sm-become-3sm/PAST

He trembled.

b.

2	P	
- - - - - - - -		
2	Cho	P
1	Cho	P
ín	dádar	imánimi
he	tremble	he became

(112) contains the uninflectible unaccusative verb dádar *to tremble*. Unlike a clause with the auxiliary b *to be*, this clause has the unaccusative advancement construction in the final P-sector; manáas *to become* shows object agreement with the P-initial 2 of this P-sector, ín *he*. Some similar examples with a predicate adjective and a predicate nominal follow.

(113)	a.	ín	sardáar	imánimi
		ín	sardáar	i-man'-imi
		3sh/ABS	president.h	3sm-become-3sm/PAST

He became president.

b.

2	P	
- - - - - - - -		
2	Cho	P
1	Cho	P
ín	sardáar	imánimi
he	president	he became

(114)	a.	ín	shwá	imánimi
		ín	shwá	i-man'-imi
		3sh/ABS	good	3sm-become-3sm/PAST

He became good.

b.

2	P	
- - - - - - - -		
2	Cho	P
1	Cho	P
ín	shwá	imánimi
he	good	he became

Example (113) contains the predicate nominal sardáar *president*. Example (114) contains the predicate adjective shwá *good*. If these are analyzed as unaccusative predicates in these clauses, and unaccusative advancement in clauses with the auxiliary manáas *to become* must occur in the final P-sector, then the object agreement on this auxiliary is accounted for.

Finally I will present one more example of a clause with the auxiliary manáas.

(115)	a.	ín	él	um	cás	maními
		in	éle	um	cás	man'-imi
		3sh	there	from	walk.out	become-3sm/PAST
		He walked out from there (in disagreement).				

b.	1	Source	P	
	1	Source	Cho	P
	ín	él um	cás	maními
	he	from there	walk.out	he became

(115) contains the uninflectible unergative verb chás *to walk out*. In this example there is no 2 in either P-sector and no object agreement. This is just what is predicted according to the verb agreement rules that have been presented thus far in this paper.

In order to guarantee that 2-1 advancement occurs in the final P-sector, the following statement must be added to the rules in (111).

(116) Select the auxiliary manáas if and only if:
i. any GR changing constructions, if they occur, occur in the final P-sector, and
ii. the clause is finally unergative.

We see the crucial difference between constructions with the auxiliaries manáas *to become* and b *to be*. In a clause with manáas, 2-1 advancement occurs optionally in the final P-sector; in a clause with b, 2-1 advancement occurs obligatorily in the initial P-sector. This assumes that the syntax of a multi-predicate clause with a noun, adjective or uninflectible verb for a predicate, along with an auxiliary, is partially determined by the auxiliary and partially by the initial P-sector predicate.

Manáas can also occur in an antipassive construction with the uninflectible verb leél *to know* as the following example shows.[75]

(117)	bésan	bilá	ké	leél	gumáima
	bésan	b-ilá	ké	leél	gu-man'-c-uma
	what	be-3sy/PRES	COMP	know	2s-become-NONPAST-2s/FUT
	You will know what it is.				

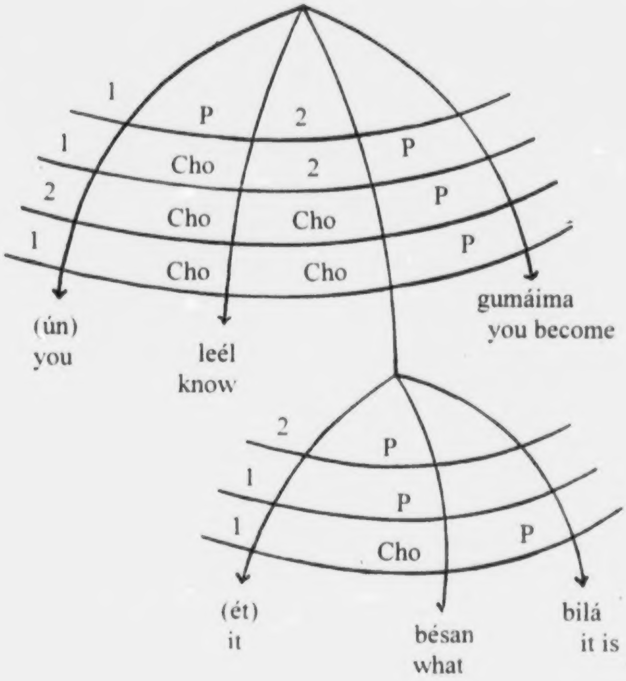
Example (117) is shown below in stratal diagram form.[76]

---

[75] Burushaski has an optional rule of unemphatic pronoun drop, under which subject and direct object pronouns need not appear overtly when their referents are clear from the context. The conditions on this rule and its details are not discussed in this paper. The pronouns ún *you* and ét *it* do not appear overtly due to this rule.

[76] In order to more clearly illustrate the relationships within and between the two clauses in this sentences I use a relational network diagram. This same sort of diagram will be useful in the next section on possessor ascension constructions.

(118)



This example shows the contrast between manáas (gumáima) and b (bilá). The antipassive construction occurs in the final P-sector of the main clause with manáas. Unaccusative advancement occurs in the initial P-sector of the subordinate clause with b.

6.2.1. *Passives with manáas*

We have seen in section 4 that in a passive construction with an uninflectible verb the auxiliary manáas *to become* is used.[77] Example (47b) from that section is repeated here.

(119)	shishámuts	(ínmo	tsum)	táq	umánie
	shishá-muts	ín-mo	tsum	táq	u-man'-ie
	window.x-PL/ABS	3h-OBLf	by	smash	3p-become-3px/PAST

The windows were smashed (by her).

At this time we can consider the syntax of this passive auxiliary. Under the multi-predicate analysis, the diagram for (119) has this form:

---

[77] As I mentioned in section 4, I do not know if only manáas *to become* can occur with passives, or if b *to be* can alternatively be used for certain tense or aspect distinctions.

(120)	2	1	P	
	2	1	Cho	P
	1	Cho	Cho	P
	shishámuts	inmo tsum	táq	umánie
	windows	by her	smash	they became

In (120) shishámuts *windows* advances to 1 in a passive construction in the final P-sector. Since it is a final 1 and also heads a 2 arc, this nominal triggers both subject and object agreement on the auxiliary manáas.

6.3. The auxiliary étas to do

In section 4.2.1 an example was given with the uninflectible transitive verb táq *to smash*. This example is repeated as (121) below.

(121)	a.	íne	shishámuts	táq	ótumo
		in-e	shishá-muts	táq	o-t-umo
		3s-ERG	window,x-PL/ABS	smash	3p-do-3sf/PAST
		She smashed the windows.			

Except when passivized, clauses with táq always require the auxiliary étas *to do*. A multi-predicate analysis for these clauses is similar to that presented above for the other Burushaski auxiliaries. Under this analysis, example (121) is presented below.

(122)	1	2	P	
	1	2	Cho	P
	íne	shishámuts	táq	ótumo
	She	windows	smash	she did them

Táq *to smash* cannot bear the P relation in the final P-sector and therefore cannot be inflected for subject or object agreement. The auxiliary verb étas *to do* does bear the P relation in the final P-sector and therefore shows object agreement and subject agreement as predicted. There are no clause types in Burushaski which employ the auxiliary étas in which GR changing constructions take place in either the initial or the final P-sector.

I will summarize what has been said in this section on Burushaski auxiliaries below.

(123) a. Verb agreement is determined by the GRs that nominals bear in the final P-sector of a clause.

b. Nouns, adjectives and uninflectible verbs cannot bear the P relation in the final P-sector.

c. Select the auxiliary b if and only if:
   i. there is 2-1 advancement in the initial P-sector, and
   ii. the clause is finally unergative.

d. Select the auxiliary manáas if and only if:
   i. any GR changing constructions, if they occur, occur in the final P-sector, and
   ii. the clause is finally unergative.

- e. Select the auxiliary étas if and only if:
    - i. there are no GR changing constructions in any P-sector, and
    - ii. the clause is finally transitive.

7. Possessor ascension

When a certain class of transitive verbs in Burushaski have direct objects which are possessed, the possessor nominal determines object agreement as if it were a clausal constituent. This is illustrated below with the verb éskartsas *to cut*. Examples (124a,b) show straightforward singular and plural object agreement in the verb with the "x" class direct object hún *log*.

(124)	a.	úe	hún	éskartsuman
		ú-e	hún	é-skarts-uman
		3p-ERG	log,x/ABS	3sx-cut-3ph/PAST[78]
		They cut the log.		
	b.	úe	hunánts	óskartsuman
		ú-e	hun-ants	ó-skarts-uman
		3p-ERG	log,x-PL/ABS	3px-cut-3ph/PAST
		They cut the logs.		

In (125) below, the direct object is the "x" class possessed nominal mómiSh *her finger*. Object agreement is not with this noun, but rather with the possessor of the direct object, gús *woman*.

(125)	úe	gúsmo	mómiSh	móoskartsuman
	ú-e	gús-mo	mó-miSh	mó-<L>-skarts-uman
	3p-ERG	woman-OBLf	3sf-finger,x/ABS	3sf-PA-cut-3ph/PAST
	They cut the woman's finger.			

Example (126) shows an ungrammatical attempt to have the verb agree with mómiSh *her finger*.

(126)	*úe	gúsmo	mómiSh	éskartsuman.
	ú-e	gús-mo	mó-miSh	é-skarts-uman
	3p-ERG	woman-OBLf	3sf-finger,x/ABS	3sx-cut-3ph/PAST
	(They cut the woman's finger.)			

In Relational Grammar this phenomenon can be analyzed as a case of possessor ascension, in which the possessor in a nominal bears both the POSS relation to the possessed nominal, and a grammatical relation to the clause.[79] Possessor ascension has been argued for in the Relational Grammar literature for a number of languages. These include Cebuano (Bell 1983:191ff),

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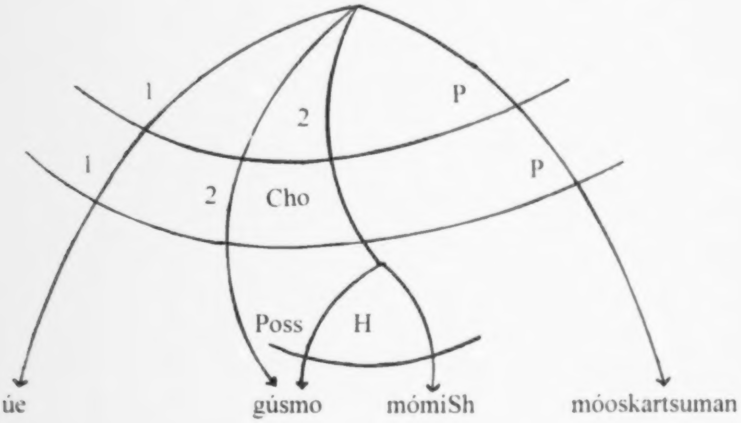
[78] The morphology of éskartsuman is actually more complex than this, but it doesn't pertain to the subject of possessor agreement.

[79] Possessor ascension is one type of a general category of syntactic constructions called ascensions in Relational Grammar. Another common type of ascension is 'raising' in which a nominal bearing a grammatical relation in a dependent clause also bears a grammatical relation in the main clause. Two laws of RG come into play in ascensions, the Relational Succession Law and the Host Limitation Law (Perlmutter & Postal 1983b:53). The former requires that the ascended nominal assume the grammatical relation of the 'host' out of which it ascends. The latter requires that nominals can only ascend out of hosts bearing term grammatical relations. The host clause (or NP in the case of possessor ascension) is put en chômage as a result. Burushaski has no ascension constructions out of clauses as far as I know.

Choctaw (Davies 1984a:343-46, 1986:60), Kera (Camburn 1984) and Malagasy (Perlmutter and Postal 1983b:43-45) among others. The diagram for such an analysis of (125) above follows:

(127)



Gús *woman* is the possessor of the initial direct object mómiSh *her finger*, and in the second stratum ascends to assume the 2 relation, putting the initial possessed phrase en chômage. Since gús *woman* is a final nuclear term and heads a 2 arc, it triggers object agreement. MómiSh *her finger* is a 2-chômeur and does not trigger agreement.[80]

Note the long vowel form of the agreement prefix in (128b). When showing agreement with a possessor, the vowel in the object agreement prefix must be long.

(128)	a.	gúse	hilésho	curúk	ótumo	
		gús-e	hilés-isho	curúk	ó-t-umo	
		woman-ERG	boy-PL/ABS	cut	3p-do-3sf/PAST	
		The woman cut the boys.				
	b.	gúse	hiléshoe	ómiants	curúk	óotumo
		gús-e	hilés-isho-e	ó-miSh-ants	curúk	ó-<L>-t-umo
		woman-ERG	boy-PL-OBL	3p-finger.x-PL/ABS	cut	3p-PA-do-3sf/PAST
		The woman cut the boys' fingers.				

Possessor ascension in a clause is signalled by an agreement prefix with a long vowel.[81] As (129) shows, in sentences with a non-overt initial direct object, vowel length in the agreement prefix is the superficial distinction between sentences with and without possessor ascension.

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[80] The final chômeur is the NP gúsmo mómiSh. For the sake of convenience I will refer to the NP by making reference to its head.

[81] Presence of a prefix with a long vowel does not necessarily signal possessor ascension however. It could signal a causative construction (see next section). Or it might simply be that the agreement prefix vowel in a particular verb requires the long form. One example of this type of verb is the antipassive verb déeGurkas *to find* (see section 5.3). Another is the verb éeGanas *to perceive* (also antipassive) as in the following example:

(129)	a.	jáa	Cam	góotam
		jé-e	Cam	gó-<L>-t-am
		1s-ERG	poke	2s-PA-do-1s/PAST

I poked your (something).

b.	jáa	Cam	gótam
	jé-e	Cam	gó-t-am
	1s-ERG	poke	2s-do-1s/PAST

I poked you.

I suggest that the following rule needs to be incorporated into the grammar of Burushaski.

(130) In a possessor ascension construction, the object agreement prefix is lengthened.

One potential problem for the possessor ascension analysis is that in example (125) above and in the other examples of possessor ascension presented here, the possessor is still marked with OBL case. It cannot occur in ABS case. If the possessor is ascending to bear the 2 relation in the main clause, one might assume that it should be unmarked, since there is no rule that marks 2s with case. At least two alternative explanations are possible.

First, there may be no possessor ascension construction at all. Davies (1984b:399) argues against a possessor ascension analysis for similar clauses in Choctaw. In Choctaw, 2s determine verb agreement and same subject marking given the proper environment. Possessors of inalienably possessed body parts determine verb agreement, but not same subject marking. For this reason Davies rejects the possessor ascension analysis in favor of a rule which "asserts that a referential coding rule may optionally reference a possessor."

Since the only evidence for possessor ascension in Burushaski is verb agreement (and not ABS case marking), under a non-ascension analysis the object agreement rule could be revised as follows:

(131) A nominal heading a 2 arc, or the possessor of a nominal heading a 2 arc in a clause with a possessor agreement verb, determines object agreement.

Alternatively, a possessor ascension analysis could be maintained for these clauses if possessor nominals are considered to be case marked in a manner similar to 3s and Sources in Burushaski. Recall that case marking rule (85c) in section 4 states that nominals heading POSS arcs are marked with OBL case, in any level of the clause or phrase in which they occur (embedded or main). Thus OBL case marking for a possessor is the natural result of the rules presented above, whether it ascends to head a 2 arc or not. Nominals occur in ABS case only by default when no case marking rules are applicable. The same sort of phenomenon occurs with 3s and Sources. Nominals bearing those GRs are followed by the postpositions r *to* and tsum *from* respectively, no matter at what level in the clause they bear these relations.[82]

(xxviii)	hamíid	qhósh	étas	mushkíl	bilá	áaGayabaa
	hamíid	qhósh	é-t-as	mushkíl	b-ilá	áa-Gan'-c-abaa
	Hamid/ABS	happy	3sy-do-INF	difficult	be-3sy/PRES	1s-perceive-NONPAST-1s/PRES

I perceive (think that) to please Hamid is difficult.

In neither of the examples referred to here would it be justified to posit a possessor ascension or causative construction to account for the long vowel in the agreement prefixes. (Note also that the long vowel form is not typical of antipassive constructions.)

[82] The exception to this is Sources in clauses with duGárusas *to ask*.

If the ascended nominal could passivize, undergo unaccusative advancement or 2-3 retreat, this would provide further evidence that would lend support to the possessor ascension analysis. Possessors may not participate in any of these constructions however. Lengthening of the vowel in the agreement prefix is not a strong argument for possessor ascension, since this could also be claimed as a result in a non-ascension analysis. However, since vowel lengthening is also present in a causative construction and an impersonal construction (see the following sections) a unified account of this phenomenon is possible with an ascension analysis. This will be discussed further in section 9.

7.1. Conditions on possessor ascension

Possessor ascension in Burushaski is a governed construction and is obligatory in clauses with verbs that govern it, no matter what kind of nominal is possessed. The examples in (125) and (128b) above show possessors of inalienably possessed body part nominals.[83] Possessors of other kinds of nominals also ascend.

(132)	jáa	úne	pén	GaJám	góotam
	jé-e	ún-e	pén	GaJám	gó-<L>-t-am
	1s-ERG	2s-OBL	pen,x/ABS	snatch	2s-PA-do-1s/PAST

I snatched your pen.

Possessor ascension is limited to hosts that are 2s.[84] In (133) the possessor of an unaccusative subject ascends.

(133)	jáa	awáT	dáaGaYila
	jé-e	awáT	d-á-<L>-GaY-ila
	1s-OBL	skin,y/ABS	d-1s-PA-itch-3sy/PRES

My skin itches.

Possessors of ergatives do not ascend.

(134)	a.	gúsmo	muíe	jáa	ámiSh
		gús-mo	mu-í-e	jé-e	á-miSh
		woman-OBLf	3sf-son-ERG	1s-OBL	1s-finger,x/ABS

áaskartsimi
á-<L>-skarts-imi
1s-PA-cut-3sm/PAST
The woman's son cut my finger.

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[83] The direct object in (125) is an inalienably possessed body part while those in (124a,b) are simple "x" nouns. The reason for this is not that the "x" noun hún *log* cannot host possessor ascension, but rather that I did not check possessor agreement for this noun. To check this it would be necessary to check a sentence like *He cut my logs*.

Not every verb authorizes possessor ascension. The following sentence is not acceptable.

(xxix)	*jáa	gúsmo	mómiants	móoyetsam
	jé-e	gús-mo	mó-miSh-ants	mó-<L>-yeéts-am
	1s-ERG	woman-OBLf	3sf-finger,x-PL/ABS	3sf-PA-see-1s/PAST

**I saw the woman's fingers.*

[84] Possessors of 2s which are advancees from 3 do not ascend in examples I have found. However, 3-2 advancement verbs may belong to the class of verbs that do not sanction possessor ascension at all. I lack the necessary data to explore this at this time.

b. *gúsmo muie jáa ámiSh áakartsumo
áa-<L>-skarts-umo
1s-PA-cut-3sf/PAST

Possessor ascension only occurs when the subject and the possessor of the direct object are non-coreferential.[85] In (135a), agreement in the verbal prefix is with émients *his fingers*; there is no possessor ascension. As (135b) shows, possessor ascension can never have coreferential reading.

(135)	a.	qasaaie	émiants	curúk	ótimi
		qasaai-e	é-miSh-ants	curúk	ó-t-imi
		butcher-ERG	3sm-finger,x-PL	cut	3px-do-3sm/PAST

The butcher (i) cut his (i) fingers.

b. qasaaie émiants curúk éetimi
é-<L>-t-imi
3sm-PA-do-3sm/PAST
The butcher (i) cut his (j) fingers.
**The butcher (i) cut his (i) fingers.*

I summarize the conditions on possessor ascension in Burushaski in (136).[86]

(136) Conditions on possessor ascension

a. The subject and the possessor may not be co-referential.

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[85] There is a similar constraint in Sierra Popoluca (Marlett 1988:377).

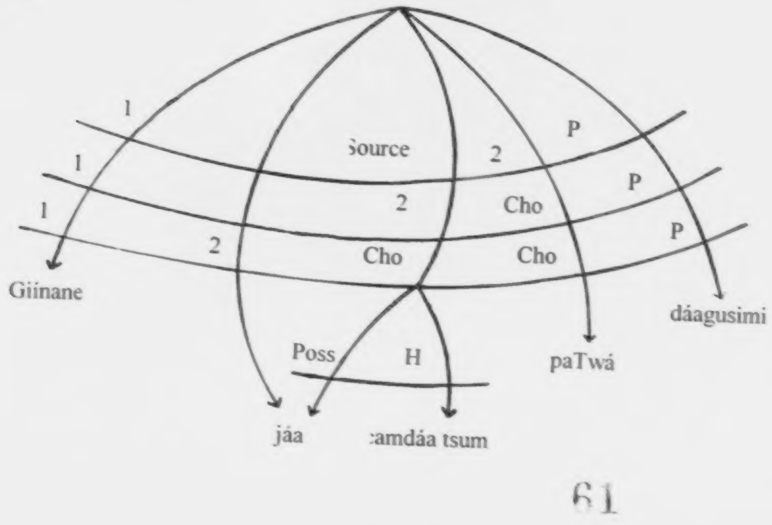
[86] There is one verb which I have found where the agreement prefix cross references the possessor of a Source nominal. This is the verb déegusas *to remove*. An example is presented below.

(xxx)	Giinane	(jáa)	camdá	tsum	paTwá	dáagusimi
	Giin-an-e	jé-e	camdá	tsum	paTwá	d-áa-gus-imi
	thief-INDEF-ERG	1s-OBL	pocket/ABS	from	purse/ABS	d-1s-remove-3sm/PAST

A thief stole a purse from (my) pocket.

Even if there is no overt possessive pronoun, the object agreement is still with the possessor. If no possessor is implied, the verb díusas *to extract* will be used. Assuming a Source-2 advancement analysis we could diagram example (xxx) in this way.

(xxxi)



b. The host must be a 2.

c. Possessor ascension is governed by a class of verbs, and is required by them when the other conditions are met.

8. Causatives

Burushaski is somewhat unusual for a South Asian language in that it uses prefixes to form causatives instead of suffixes (Masica 1976:106). Actually there are three causative prefixes used in Burushaski, one used with unaccusative verbs, one with unergative verbs and one with transitive verbs. I will discuss each of these in turn. In doing so, I will assume a monoclausal, multi-predicate analysis of Burushaski causatives similar to that used with Burushaski auxiliaries in section 6.

8.1. Causatives of unaccusatives

Only unaccusative verb roots occur with the causative prefix s-; unergative and transitive verbs do not.[87] In (137) below are listed some unaccusative verbs and their causative forms.

(137)	Unaccusative	Causative	Gloss of root
a.	baláas	éspalas	*burn*
b.	duGánDeras	désqanDaras	*be crooked*
c.	díkaTas	déskaTas	*stop*
d.	dítalas	déstalas	*wake up*
e.	díwaras	désparas	*revive*
f.	diyáYas	déstaYas	*be propped up*
g.	Gasáas	ésqasas	*spoil*
h.	iGúlas	ésqulas	*burn*
i.	Gurtsáas	ésqurtsas	*be immersed*
j.	ikháranas	éskaranas	*be late*
k.	tháyas	éstayas	*be extinguished*
l.	iwáalas	éspalas	*be lost*

Not every unaccusative verb can occur with s-. For example, there is no s- (nor any other) causative form for émalas *feel shame*.

Sentence examples with Guláas *to burn* are presented below.

(138) a. Gashíl Gulúmi
Gashíl Gul'-imi
wood,y/ABS burn-3sy/PAST
The wood burned.

b. jáa Gashíl ésqulam
jé-e Gashíl é-s-Gul'-am
1s-ERG wood,y/ABS 3sy-CAUS-burn-1s/PAST
I made the wood burn.

In (138a) there is no "y" class object agreement shown on the verb. This is typical of a certain class of verbs that was mentioned in section 2. In (138b) the agreement prefix is present;

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[87] There is at least one exception to this rule; the verb daGáyas *to hide*, which is unergative, has a causative form of éestaqayas *to make him hide*. Éestaqayas not only has the s- causative prefix, but also the lengthened vowel which is found in causative forms of transitive verbs (see section 8.3). There is no intermediary transitive form however, i.e. *éstaqayas.

the derived causative form is a member of the class of verbs which require an agreement prefix no matter what the class of the object.

A monoclausal multi-predicate analysis for (138b) is given below:

(139)

	2		P
1	2	P	Cho
jáa	Gashíl	s	Gul'-
I	wood	(cause	(burn)

Gashíl *wood* heads a 2 arc in both the initial and final P-sector and determines object agreement. Jé *I* heads a final 1 arc in the final P-sector and determines subject agreement. Another example is presented below. (140) contains the unaccusative verb díwaras *to revive*.

(140) in díwarai
in d-i-war-ai
3sh/ABS d-3sm-revive-3sm/PRSPRF
He has revived.

Example (141a) is the causative form of this sentence with the appropriate tabular diagram following.

(141) a. jáa ín désparabayam
jé-e ín d-e-s-war-abayam
1s-ERG 3sh/ABS d-3sm-CAUS-revive-1s/PRSPRF
I have caused him to revive. (I have revived him.)

b.

	2		P
1	2	P	Cho
jáa	ín	s	war-
I	he	(cause	(revive)

No causative (including causatives of unaccusatives) interacts with any other GR changing constructions, i.e. inversion or antipassive.

8.2. Causatives of unergatives

For unergative verbs, causative and non-causative forms are identical. I have indicated this in the examples below with a null prefix Ø- *CAUS* in the causative forms. Two unergative verbs and their causative counterparts are presented in (142) and (143).

(142) a. gús mán aTe hurúTumo.
gús mán aTe hurúT-umo
woman/ABS platform,x/ABS on sit-3sf/PAST
The woman sat on the platform.

b. jáa gús mán aTe móuruTam
jé-e gús mán aTe mó-Ø-hurúT-am
1s-ERG woman/ABS platform,x on 3sf-CAUS-sit-1s/PAST
I made the woman sit on the platform.

(143) a. biTán tamasháan ulo giráshai
biTán tamashá-an ulo girát-c-ai
shaman/ABS celebration,y-INDEF/ABS in dance-NONPAST-3sm/PRES
The shaman dances in a celebration.

b. úe biTán tamasháan ulo
ú-e biTán tamashá-an ulo
3p-ERG shaman/ABS celebration,y-INDEF/ABS in

egirashaan
é-Ø-girat-c-aan
3sm-CAUS-dance-NONPAST-3ph/PRES
They make the shaman dance in a celebration.

(142a) and (143a) are simple unergative constructions. In (142b), jé *I* is subject. In (143b), the subject is ú *they*. In both cases the subject of the 'inner' clause is the direct object of the main clause. (142b) is diagrammed below.

(144)

	1	Loc	P	
1	2	Loc	Cho	P
jáa	gús	mán aTe	hurúT	Ø-
I	woman	on platform	(sit)	(cause)

The 1 in the initial P-sector is a 2 in the final P-sector and triggers object agreement.

8.3. Causatives of transitives

The causative predicate for a transitive verb is realized as lengthening of the object agreement prefix vowel.[88] Consider the sentences in (145).

(145) a. úe húnan dítsuman
ú-e hún-an d-í-ts-uman
3ph-ERG beam,x-INDEF/ABS d-3sx-bring-3ph/PAST
They brought a beam.

b. jáa ú húnan dóotsam
jé-e ú hún-an d-ó-<L>-ts-am
1s-ERG 3ph/ABS beam,x-INDEF/ABS d-3ph-CAUS-bring-1s/PAST
I made them bring a beam.

Example (145a) is straightforwardly analyzed as a monostratal transitive clause. In the causative construction in (145b) however, jé *I* is subject. The subject of the 'inner' clause is the direct object of the main clause and thus determines object agreement on the verb.

According to the multi-predicate analysis, (145b) is diagrammed as follows:

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[88] Many unaccusative verbs which can be causativized with the s- prefix produce derived transitive constructions which can in turn be causativized by the long vowel agreement prefix; for example, iGúlas *burn*, ésqulas *make burn*, éesqulas *make him burn (it)*.

(146)

	1	2	P	
1	2	Cho	Cho	P
jáa	ú	húnan	ts-	<L>
I	them	beam	(bring	(cause)

Transitive verbs which have no agreement prefix because their direct objects are always "y" class nominals are causativized by the addition of an agreement prefix which cross-references the final 2 and which has a long vowel. For example, the causative of daldínas *to sift* is éedaldinas *to cause him to sift*.

(147) a.

íne	sáu	daldínimi
in-e	sáu	daldín-imi
3sh-ERG	sand,yp/ABS	sift-3sm/PAST

He sifted the sand.

b.

jáa	ín	sáu	éedaldinam
jé-e	ín	sáu	é-<L>-daldín-am
1s-ERG	3sh/ABS	sand,yp/ABS	3sm-CAUS-sift-1s/PAST

I made him sift the sand.

8.4. Causatives of the auxiliary étas

Clauses with an uninflectible verb and the auxiliary étas *to do* also can occur in causative constructions. Consider the sentences in (148):

(148) a.

gúse	méezisho	safáa	ótumo
gús-e	méez-isho	safáa	ó-t-umo
woman-ERG	table,x-PL/ABS	clean	3px-do-3sf/PAST

The woman cleaned the tables.

b.

jáa	gús	méezisho	safáa	móotam
jé-e	gús	méez-isho	safáa	mó-<L>-t-am
1s-ERG	woman/ABS	table,x-PL/ABS	clean	3sf-CAUS-do-1s/PAST

I made the woman clean the tables.

Example (148a) is a multi-predicate clause with the uninflectible verb safáa *to clean*. Example (148b) is a causative construction. The diagram for example (148b) follows:

(149)

	1	2	P		
	1	2	Cho	P	
1	2	Cho	Cho	Cho	P
jáa	gús	méezisho	safáa	t-	<L>
I	woman	tables	clean	(do)	(cause)

Jé *I* is the final 1 in the final P-sector, is marked with ERG case and triggers subject agreement. Gús *woman* is the final 2 in the final P-sector, is marked with ABS case and triggers object agreement. The uninflectible verb safáa *to clean* does not head a P arc in the final P-sector and shows no object agreement. The auxiliary verb étas *to do* has a long vowel in the agreement prefix which signals causative.

As with ṣ- causatives of unaccusatives, causatives of unergatives and transitives do not interact with any other GR changing constructions; in other words, clauses with a causative disallow any GR changing constructions in any P-sector.

I summarize the conditions on Burushaski causatives below:

(150) a. Causatives disallow any GR changing constructions in any P-sector.

b. The P-final 1 in the last non-causative P-sector is a P-final 2 in the causative P-sector.

c. Select ṣ- if the clause is initially unaccusative.

d. Select Ø- if the clause is initially unergative.

e. Select <L> if the clause is initially transitive.

f. Uninflectible verbs may not be causativized.

8.5. Some atypical causatives

Causative verb forms may not always have 'non-causative' counterparts. There is a group of verbs that can only occur in syntactically causative constructions yet have no independently occurring non-causative forms. Some of these verbs are éeltiras *to show*, éesiras *to feed* and éeras *to send*. They are not related to any non-causative Burushaski verbs for seeing, eating or going/traveling. Examples are presented in (151) below with some tentative glosses.

(151) a.

hilése	dasín	taswíir	móoltirimi
hilés-e	dasín	taswíir	mó-<L>-ltir-imi
boy-ERG	girl/ABS	picture,y/ABS	3sf-CAUS-view?-3sm/PAST

The boy showed the girl the picture.

b.

ímie	muí	phíTi	éesirumo
í-mi-e	ɱu-í	phíTi	é-<L>-sir-umo
3sm-mother-ERG	3sf-son/ABS	bread,x/ABS	3sm-CAUS-ingest?-3sf/PAST

The (lit. 'his') mother fed her son bread.

c.

jáa	ún	gíilta	r	góoram
jé-e	ún	gíilt-e	r	gó-<L>-r-am
1s-ERG	2s/ABS	Gilgit-OBL	to	2s-CAUS-go?-1s/PAST

I sent you to Gilgit.

(151a) is presented below in diagram form.

(152)

	1	2	P	
1	2	Cho	Cho	P
hilése	dasín	taswíir	ltir-	<L>
boy	girl	picture	(view?)	(cause)

If this sentence is analyzed as a causative construction, the ABS case marking on dasín *girl* and taswíir *picture* is accounted for. Dasín is a final 2 and taswíir is a 2 chômeur in the final P-sector, both of which are unmarked according to the case marking rules being proposed in this paper. As a nominal heading a final 2 arc, dasín triggers object agreement. The long vowel signals a causative. Hilés *boy* is a final ergative and triggers subject agreement.

The alternative to a causative analysis for the sentences in (151a-c) is to posit verbs which are somewhat unusual morphologically (with respect to the long vowels). But other facts are less easily accounted for. For example, if we claim that dasín *girl* in (151a) is an initial 3 that advances to 2, we fail to account for the lack of the postposition r following it.[89]

9. Impersonal constructions

There is a set of uninflectible verbs that are used for some bodily processes in Burushaski. They are always used with the auxiliary éetas *to do* (with a long vowel in the agreement prefix). A sample set of these verbs is given in (153).

(153) 'Bodily process' verbs

a.	thíShâu	*to sneeze*
b.	muruúq	*to have pain in the stomach*
c.	qhiír	*to breathe noisily (due to a lung disease)*
d.	Cár	*to have diarrhea*
e.	qár	*to itch*
f.	óq	*to vomit*
g.	Cám	*to have pain in the side and chest*

Example (154) is a sentence example with the first of these verbs.

(154) ín thíShâu móocila.
ín thíShâu mó-<L>-t-c-ila
3sh/ABS sneeze 3sf-D-do-NONPAST-3sy/PRES
She is sneezing.

The nominal representing the person sneezing occurs in ABS case and triggers object agreement on the auxiliary éetas *to do*. The object agreement prefix vowel is long. The subject agreement suffix is showing agreement with a "y" class singular nominal. ThíShâu *to sneeze* is not this nominal since it is not marked with ERG case.

I suggest that these verbs occur in impersonal constructions, with a (silent) dummy subject that is grammatically a "y" class singular pronoun.

Within Relational Grammar, the notion of 'dummy nominal' has been important in the account of many diverse grammatical phenomena. The examples below are from Perlmutter and Postal 1983c:101, which provides a clear description of the place of dummy nominals in RG.

(155) a. It is clear that he is guilty. (English)

b. Il est évident qu'il est coupable. (French)
It is obvious that he is guilty.

c. Es is nicht sicher, dass er schuldig ist. (German)
It is not certain that he is guilty.

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[89] In certain limited circumstances the Viewer must be marked with -r. For example:

(xxxii) jáa r hán gánan áaltir!
je-e r han gan-an a-<L>-ltir-0
1s-OBL to one,xy road,y-INDEF 1s-CAUS-view?-IMP
Show me a (new) way (to go).

d. Yr oedd hi yn bwrw glaw ddoe. (Welsh)
was she throw rain yesterday
It was raining yesterday.

e. Het is niet zeker, dat hij te laat kwam. (Dutch)
It is not certain that he too late came
It is not certain that he came late.

In an impersonal analysis, the diagram for (154) would be:

(156)

	2	P	
	2	Cho	P
1	2	Cho	P
Dummy	ín she	ThíShâu sneeze	t- (do)

The pronoun ín *she* is a final 2 and triggers object agreement in the auxiliary étas *to do*. As a "y" class pronominal 1, the dummy triggers subject agreement. In this case, the vowel lengthening indicates presence of this silent dummy.[90]

9.1. Agreement prefix vowel lengthening revisited.

We have seen that the lengthened form of the object agreement prefix occurs in three cases: possessor ascension, causatives of transitives, and clauses with dummies. A rule for object agreement prefix vowel lengthening could be proposed as follows:

(157) Lengthen the vowel of the object agreement prefix if the clause contains a constituent which heads a final arc in the clause but not an initial arc.

Perhaps the presence of -r is triggered by the imperative form of this sentence. In these cases I would propose a 2-3 retreat analysis as diagrammed in (xxxiii) below:

(xxxiii)

	1	2	P	
1	2	Cho	Cho	P
1	3	Cho	Cho	P
Unspecified	jáar to me	hán gánan a road	ltir- (view?)	<L> (cause)

[90] This analysis violates the active dummy law however, which states informally that a dummy must put some nominal en chômage in the stratum in which it first bears a GR in a clause (Perlmutter 1983b).

Alternatively, one might argue for a Dummy + Causative analysis of (154). In this case the diagram for this example would have the following form:

(xxxiv)

	2	P		
	2	Cho	P	
1	2	Cho	Cho	P
Dummy	ín she	ThíShâu sneeze	t- (do)	<L> CAUS

Lit. It causes her to do a sneeze.

This rule must be applied disjunctively, after rules (150c,d) in section 8 which mark causatives of intransitives and unergatives. Lengthening then is the default way to mark the presence of 'latecomers' in a clause.[91] The possibility of giving a unified treatment to vowel lengthening provides further evidence in favor of each of the analyses presented earlier.[92]

9.2. *Disjunctively ordered rules*

In Davies 1983 evidence is provided for the disjunctive application of morphosyntactic rules. We have already seen in the last section how the idea of disjunction is useful in stating the rules for forming Burushaski causatives. Disjunctive ordering could also be applied to the set of case marking rules presented in this paper. In that case the rules would have the following form:

(158) Case marking rules (an alternative version)

a. A nominal which heads a POSS arc is marked with OBL case.

b. A nominal which heads a 3 arc is flagged with the postposition r.

c. A nominal which heads a Benefactive arc is flagged with the postposition gáne.

d. A nominal which is an absolutive or heads a 2 chômeur arc occurs in ABS case (that is, is unmarked).

e. A nominal which heads a Source arc or a 1 chômeur arc is flagged by the postposition tsum.

f. A nominal which is an ergative is marked by ERG case.

No mention is made of specific levels at which nominals bear these relations, nor are there restrictions on what other GRs a nominal might bear in a clause. Certain of these rules are crucially ordered with respect to each other. These ordered pairs are presented below, along with the syntactic constructions which require these orderings:

---

[91] I am indebted to Albert Bickford for this analysis.

[92] There is one small class of verbs with lengthened prefixes which do not fit any of the categories described so far. Two of these verbs are déematalas *yawn* and déepirkinas *stumble*. These verbs are similar to unaccusative verbs in that they show agreement in both the prefix and suffix with the experiencer, yet the agreement prefix is definitely long, not short:

(xxxiv) a. jé dáamatalam
je d-a-<L>-matal-am
1s/ABS d-1s-?-yawn-1s/PAST
I yawned.

b. hir déepirkanimi.
hir d-e-<L>-pirkan-imi
man.m/ABS d-3sm-?-stumble-3sm/PAST
The man stumbled.

It is unclear to me how to analyze clauses with these verbs.

(159) Ordered pairs of case marking rules

a. (158a), (158d) - Possessor ascension
b. (158b), (158c) - Benefactive-3 advancement
c. (158b), (158d) - 3-2 advancement, 2-3 retreat
d. (158b), (158f) - Inversion
e. (158d), (158e) - Source-2 advancement
f. (158d), (158f) - Antipassive
g. (158e), (158f) - Passive

In this analysis, unmarked case cannot be the default marking. The rule for ABS case must apply before at least two other case marking rules, that which marks Sources and 2 chômeurs, and that which marks ergatives.

10. Conclusion

In this paper I have examined a number of commonly used clausal constructions in Burushaski. By employing a grammatical framework which makes use of grammatical relations at different strata in a clause, a wide range of agreement and case marking phenomena have been accounted for. I have shown that Burushaski has many of the same grammatical constructions found in widely diverse languages, such as passive, 3-2 advancement, 2-3 retreat, and others.

The RG notions of unaccusative and unergative are sufficient to characterize the two major groupings of intransitive verbs in Burushaski. Unaccusative verbs are distinct from unergative verbs in that they require an object agreement prefix and allow causativization with s-.

The variety of nominals that can trigger object agreement on the verb are accounted for by various revaluation constructions. By saying that Burushaski sanctions passive, 3-2 advancement, Source-2 advancement, 2-3 retreat, and others under varying conditions, we are able to state the generalization for object agreement in a very succinct way; verbs agree with final nuclear terms, and 2s trigger object agreement.

A similar statement can be made for subject agreement once it is stated that the grammar sanctions inversion, multi-predicate causative constructions, and impersonal constructions with a silent dummy nominal. Positing silent dummies provides an explanation for why certain bodily process verbs consistently have third person "y" class subject agreement prefixes and a long vowel in the object agreement prefix.

Burushaski particularly lends support for the RG claim that antipassive constructions are characterized as those in which a nominal is demoted from 1 to 2, and advances to 1 again by unaccusative advancement. The antipassive analysis accounts for the various transitive and intransitive characteristics that clauses with antipassive verbs have, especially object agreement in the verb with the notional subject.

The RG notion of ascension is sufficient to account for possessor object agreement with verbs that govern this construction. The possessor of a direct object ascends to bear the 2 relation in the main clause and therefore triggers the appropriate agreement in the verb.

Analyzing clauses with auxiliaries as multi-predicate constructions helps to account for the absence of object agreement on b *to be*, its presence with étas *to do*, and its presence or absence with manáas *to become*. The auxiliary b requires that grammatical relation changing constructions occur in the initial P-sector; manáas requires that GR changing constructions occur in the final P-sector; a[illegible]tas prohibits any GR changing constructions in any P-sector.

Causatives and inversion are also seen as multi-predicate constructions in Burushaski. Under this analysis, lack of object agreement in inversion constructions is a consequence of the requirement of the auxiliary b that GR changes occur in the 'inner' clause. Vowel length in the object agreement prefix is a result of causative in clauses with verbs that sanction this construction.

Case marking of certain nominals in Burushaski is often sensitive to grammatical relations that they bear in a clause, without reference to levels. This is true for indirect objects, Possessors and Sources (with the exception of one verb). Thus if a nominal bears one of these relations in a clause it will receive the appropriate marking, no matter what other grammatical relations it bears.

The rule for ergative case marking is similar. In order for a nominal to receive ERG marking it must be an ergative and head only a 1 arc. It need not be finally ergative; a claim which is supported by the analysis of clauses with 2-3 retreat constructions. Thus the nominals that are final subjects in inversion, antipassive and passive clauses are not marked with ERG case because they also bear the 2 relation at some level in these clauses.

In this analysis, any nominals that are not case marked by a specific rule receive no overt marking (ABS case) by default. Alternatively, the case marking rules can be generalized further when they are applied disjunctively. In this case however, a specific rule for ABS (unmarked) case marking is required.

Appendix: Summary of rules

Verb agreement rules

a. The verb agrees with final nuclear terms.

b. A final nuclear term which heads a 1 arc (in any stratum) determines subject agreement.

c. A final nuclear term which heads a 2 arc (in any stratum) determines object agreement.

d. Nouns of the 'seeds' class do not determine object agreement on the auxiliary manáas.

e. Verb agreement is determined by the GRs that nominals bear in the final P-sector of a clause.

f. The u- prefix registers passive on inflectible verbs and blocks object agreement.

Case marking rules

a. A nominal which heads a 3 arc is flagged with the postposition r.

b. A nominal which heads a Source arc (and which is not the final 2 of duGárusas) or a 1-chômeur arc is flagged with the postposition tsum.

c. A nominal which heads a POSS arc is marked with OBL case.

d. A nominal which heads a final Benefactive arc is flagged with the postposition gáne.

e. A nominal which is an ergative and heads only a 1 arc in a non-future tense clause is marked by ERG case.

Case marking rules (disjunctively ordered)

a. A nominal which heads a POSS arc is marked with OBL case.

b. A nominal which heads a 3 arc is flagged with the postposition r.

c. A nominal which heads a Benefactive arc is flagged with the postposition gáne.

d. A nominal which is an absolutive or heads a 2 chômeur arc occurs in ABS case (that is, is unmarked).

e. A nominal which heads a Source arc or a 1 chômeur arc is flagged by the postposition tsum.

f. A nominal which is an ergative in a non-future tense clause is marked by ERG case.

Auxiliary selection rules

a. Nouns, adjectives and uninflectable verbs cannot bear the P relation in the final P-sector.

b. Select the auxiliary b if and only if:
   i. there is 2-1 advancement in the initial P-sector, and
   ii. the clause is finally unergative.

c. Select the auxiliary manáas if and only if:
   i. any GR changing constructions, if they occur, occur in the final P-sector, and
   ii. the clause is finally unergative.

d. Select the auxiliary étas if and only if:
   i. there are no GR changing constructions in any P-sector, and
   ii. the clause is finally transitive.

Conditions concerning possessor ascension

a. The subject and the possessor may not be co-referential.

b. The host must be a 2.

c. Possessor ascension is governed by a class of verbs, and is required by them when the other conditions are met.

Rules concerning causatives

a. Causatives disallow any GR changing constructions in any P-sector.

b. The P-final 1 in the last non-causative P-sector is a P-final 2 in the causative P-sector.

c. Uninflectable verbs may not be causativized.

d. Select s- if the clause is initially unaccusative.

e. Select Ø- if the clause is initially unergative.

f. Lengthen the vowel of the object agreement prefix if the clause contains a constituent which heads a final arc in the clause but not an initial arc. In other words, select <L> if the clause
   i. is causative and initially transitive, or
   ii. contains a possessor ascension construction, or
   iii. contains a dummy.

g. Rules d-f are disjunctively ordered.

Abbreviations

ABS	absolutive
CAUS	causative
Cho	Chômeur
COMP	complementizer
d, "d-"	prefix
D	Dummy
DEM	demonstrative pronoun
ERG	ergative
f	feminine
FUT	future
h	human
IMP	imperative
IMPF	imperfect
INDEF	indefinite
INF	infinitive
<L>	lengthening
Loc	locative
m	masculine
Mal	Malefactive
NEG	negative
OBL	oblique (non-feminine form)
OBLf	oblique (feminine form)
p	plural
PA	possessor ascension
PASS	passive
PAST	past
PL	plural
prx	proximate
PSTPRF	past perfect
POSS	possessor
PRES	present
PRSPRF	present perfect
QUEST	question
REFL	reflexive
REL	relative pronoun
s	singular
STATPRT	stative participle
Tem	Temporal
x	"x" noun class
y	"y" noun class
1,2,3	in glosses: first, second, third person; in diagrams: subject, direct object, indirect object

References

Andrews, Avery. 1985. The major functions of the noun phrase. *Language typology and syntactic description I*, ed. by Timothy Shopen, 62-154. Cambridge: Cambridge University Press.

Bashir, Elena. 1985. Toward a semantics of the Burushaski verb. *Proceedings of the conference on participant roles, South Asia and adjacent areas*, ed. by Zide et al, 1-32. Bloomington: Indiana University Linguistics Club.

Bell, Sarah J. 1983. Advancements and ascensions in Cebuano. In Perlmutter, 1983a. 143-218.

Berger, Hermann. 1974. Das Yasin-Burushaski (Werchikwar). Wiesbaden: Otto Harrassowitz.

_________. 1985a. A survey of Burushaski studies. *Journal of Central Asia 8*. 33-37.

_________. 1985b. Etymologische Bemerkungen zu einigen auf Geister und Geisterglaube bezügliche Wörter im Burushaski.

_________. n.d. Die Burushaski-Sprache von Hunza und Nager: Part 1: Grammatik. Part 2: Texte mit Übersetzungen und Anmerkungen. Part 3: Hunza-Wörterbuch. [Unpublished Manuscript.]

Blake, Barry J. 1990. *Relational Grammar*. London and New York: Routledge.

Borgstrøm, Carl Hj. 1945. The categories of person, number and class in the verbal system of Burushaski. In Marstrander, 1945. 130-147.

Bouda, K. 1950. Die Sprache der Buruscho. *Eusko-Jakintza - Revue d'etudes Basques 4*. 32-50.

Camburn, Janet K. 1984. A Relational Grammar approach to Kera syntax. *Work papers of the Summer Institute of Linguistics*, University of North Dakota Session 28, ed. by Desmond C. Derbyshire, 1-49. Huntington Beach: Summer Institute of Linguistics.

Davies, William D. 1983. Disjunctive application of agreement rules. *West coast conference on formal linguistics* 2. University of Southern California: Los Angeles.

_________. 1984a. Antipassive: Choctaw evidence for a universal characterization. In Perlmutter and Rosen, 1984. 331-376.

_________. 1984b. Inalienable possession and Choctaw referential coding. *IJAL 50*. 384-402.

_________. 1986. *Choctaw verb agreement and universal grammar*. Dordrecht: D. Reidel Publishing Company.

Davies, William, and Carol Rosen. 1988. Unions as multi-predicate clauses. *Language 64*. 52-88.

Dubinsky, Stanley and Carol Rosen, eds. 1987. *A bibliography on Relational Grammar through May 1987 with selected titles on Lexical Functional Grammar*. Bloomington: Indiana University Linguistics Club.

Harris, Alice C. 1984. Inversion as a rule of universal grammar: Georgian evidence. In Perlmutter and Rosen 1984. 259-291.

Hunzai, Nasiruddin. 1961. *Diiwaan-i-Nasiiri.* Karachi: Qhaana-i-Hikmat.

_________. 1991a. *Burushaski Burjooning.* Hunza, Gilgit, Karachi: Burushaski Risarch Kamiiti.

_________. 1991b. *Burusho Birkish.* Hunza, Giilt, Karachi: Burushaski Risarch Ekademi.

Keenan, Edward L. 1985. Passive in the world's languages. *Language typology and syntactic description I*, ed. by Timothy Shopen, 243-281. Cambridge: Cambridge University Press.

Leitner, Gottlieb W. 1889. *The Hunza and Nagyr handbook*. Calcutta: Superintendent of Government Printing.

Li, C.N. and R. Lang. 1978. Ergativity in Enga and other Papuan languages. Santa Barbara: University of California linguistics program unpublished ms.

Lorimer, D.L.R. 1935-38. *The Burushaski language*. 3 vols. Oslo: Instituttet for sammenlingende kulturforskning.

Marchal, A., Etienne Tiffou and R. Warren. 1977. A propos du VOT: Le cas du bourouchaski. *Phonetica 34*. 40-53.

Marlett, Stephen A. 1981. The structure of Seri. Unpublished dissertation, University of California, San Diego.

_________. 1988. Syntactic levels and multi-attachment in Sierra Popoluca. *IJAL 52*. 359-387.

Marstrander, J.S., ed. 1945. *Norsk Tidsskrift for Sprogvidenskap*. Oslo: H. Aschehoug & Co.

Masica, Colin P. 1976. *Defining a linguistic area, South Asia*. Chicago and London: University of Chicago Press.

Morgenstierne, Georg. 1945. Notes on Burushaski phonology. In Marstrander, 1945. 61-95.

Morgenstierne, Georg, Hans Vogt and Carl Hj. Borgstrøm. 1945. A triplet of Burushaski studies. In Marstrander, 1945. 61-147.

Morin, Yves Charles. 1976. Naissance d'une contrainte de structure morphématique en bourouchaski. *Montreal working papers in linguistics/recherches linguistiques à Montréal 7*. 157-162.

Morin, Yves-Charles and Louise Dagenais. 1977. Les emprunts ourdous en bourouchaski. *Journal Asiatique 265*. 307-343.

Morin, Yves-Charles, Jurgen Pesot and Etienne Tiffou. 1979. Complément au lexique de bourouchaski du Yasin. *Journal Asiatique 267*. 137-153.

Morin, Yves-Charles and Etienne Tiffou. 1982. Les tournures passives en bourouchaski. *Proceedings of the XIIIth congress of linguistics*. 957-961.

_________. 1988. Passive in Burushaski. *Passive and voice*, ed. by Masayoshi Shibatani, 493-525. Amsterdam/Philadelphia: John Benjamins Publishing Co.

_________. 1989. *Dictionnaire complémentaire du bourouchaski du Yasin*. Paris: Peteers/SELAF.

Parkin, R. J. 1987. Tibeto-Burman and Indo-European loans in Burushaski kinship terminology. *BSOAS 50*. 325-329.

Perlmutter, David M. 1978. Impersonal passives and the unaccusative hypothesis. *BLS 4*. 157-89.

_________. 1980. Relational Grammar. *Syntax and semantics 13: Current approaches to syntax*, ed. by E. Moravcsik and J. Wirth. New York: Academic Press.

_________, ed. 1983a. *Studies in Relational Grammar 1*. Chicago: University of Chicago Press.

_________. 1983b. The active dummy law. Grammatical relations festival. Cornell University, March 17-18, 1983.

_________. 1984. Working 1s and inversion in Italian, Japanese, and Quecha. In Perlmutter and Rosen, 1984. 292-330.

Perlmutter, David M. and Carol G. Rosen, eds. 1984. *Studies in Relational Grammar 2*. Chicago: University of Chicago Press.

Perlmutter, David M. and Paul M. Postal. 1983a. Toward a universal characterization of passivization. In Perlmutter, 1983a. 3-29.

_________. 1983b. The relational succession law. In Perlmutter, 1983a. 30-80.

_________. 1983c. Some proposed laws of basic clause structure. In Perlmutter, 1983a. 81-128.

_________. 1984a. The 1-advancement exclusiveness law. In Perlmutter and Rosen, 1984. 81-125.

_________. 1984b. Impersonal passives and some relational laws. In Perlmutter and Rosen, 1984. 126-170.

Postal, Paul M. 1977. Antipassive in French. *Proceedings of the seventh annual meeting of the North East Linguistic Society*. Cambridge, MA: MIT. (Reprinted in Lingvisticae Investigationes 1. 333-74.)

Rosen, Carol. 1981. The relational structure of reflexive clauses: evidence from Italian. Unpublished dissertation, Harvard University.

________. 1984. The interface between semantic roles and initial grammatical relations. In Perlmutter and Rosen, 1984. 38-77.

________. 1987. Possessors and the internal structure of nominals. *Third biennial conference on relational grammar and grammatical relations*. University of Iowa.

Tiffou, Etienne. 1977. L'effacement de l'ergatif en bourouchaski. *Studia Linguistica 31*. 18-37.

________. 1982. Étude sur les couleurs en bourouchaski. *Journal Asiatique 270*. 363-383.

Tiffou, Etienne and Yves-Charles Morin. 1982. A note on split ergativity in Burushaski. *BSOAS 45*. 88-94.

Tiffou, Etienne and Jurgen Pesot. 1989. *Contes du Yasin: Introduction au bourouchaski du Yasin avec grammaire et dictionnaire analytique*. Paris: Peteers/SELAF.

Tiffou, Etienne, with collaboration of Y. Ch. Morin, H. Berger, D.L.R. Lorimer, Nasiruddin Hunzai. 1993. *Hunza Proverbs*. Calgary: The University of Calgary Press.

Tikkanen, Bertil. 1988. On Burushaski and other ancient substrata in northwestern South Asia. *Studia Orientalia 64*. 303-325.

________. 1991. A Burushaski folktale, transcribed and translated: The frog as a bride, or, The three princes and the fairy princess Salaasir. *Studia Orientalia 67*. 65-125.

________. 1995. Burushaski converbs in their South and Central Asian areal context. *Converbs in Cross-Linguistic Perspective*, ed. by Martin Haspelmath and Ekkehard König, 487-528. Berlin and New York: Mouton de Gruyter.

Toporov, V. N. 1970. About the phonological typology of Burushaski. *Studies in general and oriental linguistics*, ed. by Roman Jacobson and Shigeo Kawamoto, 632-647. Tokyo: TEC.

________. 1971. Burushaski and Yeniseian languages: some parallels. *Travaux Linguistiques de Prague 4*. 107-125.

Varma, Siddeshwar. 1941. Studies in Burushaski dialectology. *Journal of the Royal Asiatic Society of Bengal 7*. 133-173.

Vogt, Hans. 1945. The plural of nouns and adjectives in Burushaski. In Marstrander, 1945. 96-129.

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A Backwards Binding Construction in Zapotec*

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Many of the Zapotecan languages have a unique way of signalling coreference between the subject and the possessor of the object: the subject is null. Such a construction is upsidedown or backwards from commonly described anaphora constructions and its analysis is therefore problematic to current theories. This paper describes the construction and underlines the theoretical problem by arguing against any obvious alternative analyses. An analysis is proposed where it is the tail (rather than the head) of the chain of coreferent elements that is identified, suggesting that this is another place where parameterization is needed.

1. Introduction

One part of Binding Theory deals with simple reflexive constructions, such as (1) (where coindexing indicates coreference).

(1) John_i sees himself_i.

If we view the reflexive pronoun *himself* as consisting of the noun *self* and its possessor, and then put the English words into the VSO word order of Zapotec, we have:

(2) Sees John_i self-his_i.

The construction in (2) would fit well within the principles of Binding Theory, which in simplified terms require an anaphor or reflexive to have a local antecedent which is higher in the tree than it is. However, the Zapotec construction that I consider in this paper has the basic form in (3), where the subject is null and it is the possessor of the object which is fully specified. (Note that Zapotecan languages are not *pro*-drop languages. This is one of very few cases where the subject may be null.)

(3) Sees $\emptyset_i$ self John_i.

This unique construction is not limited to *self*-anaphors[1] but also applies to regular objects where the subject of the sentence is also the possessor of the object, as in (4)–(5).

(4) Reads $\emptyset_i$ book his_i.
(5) Gave $\emptyset_i$ broom the woman_i's.

The data for this challenging construction is presented first, followed by basic theoretical background on Binding Theory and on the phrase structure of VSO languages in section 3. Section 4 underscores the theoretically problematic nature of this construction by arguing against several plausible analyses. I then suggest that parameterization of which element

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[1] The term is taken from Reinhart & Reuland (1993) to describe all reflexive elements which are headed by the noun meaning 'self'.

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must carry the features in a coreference relationship is the simplest way to extend the theory to cover the Zapotec data.

2. Data

This backwards binding construction is present in varying degrees throughout the Zapotecan languages spoken in Oaxaca, Mexico. Examples from three of these languages will be used in this paper. Yatzachi Zapotec, a member of the Northern group of languages, uses this construction for all its anaphoric uses: true reflexives, reciprocals, and the reflexives of possession illustrated above in (4)–(5). It is this last type, the reflexive of possession, which is most prevalent throughout the rest of the Zapotecan language family.[2] Examples from Quiegolani Zapotec, one of the Southern group of languages, will also be presented in this section and in section 4. Data from Juarez Zapotec will be used in some of the argumentation in section 4.2.

2.1 Yatzachi Zapotec

There are three anaphoric constructions in Yatzachi Zapotec, each having the same unique structural shape. Butler (1976) calls these constructions the true reflexive, the reciprocal, and the reflexive of possession.

The true reflexive construction is based on an intrinsically possessed noun $k^w iN$ 'self of'.[3] This construction involves what Butler describes as a portmanteau realization of the subject and the possessor of $k^w iN$, where the subject position is empty. The possessor of the noun $k^w iN$ may be a clitic pronoun, as in (6a–c), or a full noun phrase following the noun, as shown in (6d).[4]

(6) a. B-čog k^wiN-aʔ.
C-cut self.of-1Sg
I cut myself.

b. B-čeč k^wiN-boʔ.
C-hit self.of-3F
He hit himself.

c. J̌-leʔi k^wiN-toʔ.
H-see self.of-1ExPl
We see ourselves.

d. B-e-x̯ot k^wiN beʔe-naʔ.
C-Rep-kill self.of person-that
That person killed himself (suicide).

---

[2] Some Zapotecan languages, such as Isthmus Zapotec, have reflexive pronouns that act just as expected by the VSO parallel to English. Even there, the reflexive of possession construction is used when the object is a body part noun. As pointed out by Chuck Speck (p.c.), however, the cases where the object is a body part noun may be better analyzed as incorporation constructions. See section 4.2.

[3] This form is also used in six other Northern group languages.

[4] All the data presented in this section are taken from Butler (1976) or obtained from her personally. The symbols R^w and R indicate uvular fricatives. N is an unspecified nasal which assimilates to the point of articulation of a following consonant. The following abbreviations are used in the morpheme glosses: C=Completive aspect; H=Habitual aspect; P=Potential aspect; 1IPl=first person plural inclusive pronoun; 1ExPl=first person plural exclusive pronoun; 1Sg=first person singular pronoun; 2Pl=second person plural pronoun; 3F=third person familiar pronoun; 3RS=third person respectful subject pronoun; Rep=repetitive; SPl=subject plural marker.

The reciprocal construction in Yatzachi Zapotec also contains a portmanteau realization of the subject and the possessor of an item, in this case the possessed noun *lR^{w}ežR* 'fellow of'. Example (7) shows this reciprocal construction, where the possessor must be plural.

(7) a. J̌-e-x̣aləʔ g-akəlen lR^{w}ežR-jo.
H-Rep-owe P-help fellow.of-1IPl
We must help one another.

b. J̌-geʔi-neʔ nadaʔ naʔ bito j-ne lR^{w}ežR-toʔ.
H-hate-3RS 1Sg and not H-speak fellow.of-1ExPl
She hates me and we do not speak to one another.

c. Biẓ̌čenʔ j-bažəʔ lR^{w}ežR-le.
why H-hit fellow.of-2Pl
Why do you hit one another?

d. Ba-j-əsəʔə-leʔi lR^{w}ežR bžinʔ kaʔ.
already-H-see-SPl fellow.of mule those
Those mules have already seen one another.

The third anaphoric construction is the reflexive of possession. Here any possessed noun may occur with the portmanteau realization of the subject and the possessor. The examples in (8) show the normal nonreflexive construction, where the subject and possessor of the object are expressed separately.[5] This contrasts with the examples in (9) (compare especially (8a) with (9a) and (8b) with (9b)) showing this reflexive of possession construction.[6]

(8) a. Čin-aʔ x̣ičR-boʔ.
P:comb-1Sg head-3F
I will comb his hair.

b. J̌-lab-oʔ libř če-boʔ.
H-read-3F book of-3F
He$_i$ is reading his$_j$ book.

(9) a. Čin x̣ičR-aʔ.
P:comb head-1Sg
I will comb my hair.

b. J̌-lab libř če-boʔ.
H-read book of-3F
He$_i$ is reading his$_i$ book.

c. Ba-j-g^{w}ia liš Bed-ənʔ.
already-H-look.at paper Peter-the
Peter$_i$ is already looking at his$_i$ paper.

---

[5] (8b) could be used in a case where the subject and the possessor of the object are coindexed, since the null subject is not absolutely required for coindexation. What is true is that when there is a null subject, there is forced coreference between the subject and the possessor of the object. Therefore, to avoid ambiguity and in conformity with Gricean principles (Grice 1975), (8b) would normally be used only for cases of disjoint reference, since (9b) clearly expresses forced coreference.

[6] Nouns which are not of the class that is normally possessed in Yatzachi Zapotec require *če* or *či* 'of' before the possessor, as seen in (9b,d–e).

d. Ž-Rə-nab kařt či-aʔ kořeo-nʔ.
P-go-ask letter of-1Sg post.office-the
I will go ask for my letters at the post office.

e. Bito b-nežR^w bg^{w}ex če noʔol-ənʔ.
not C-give broom of woman-the
The woman$_i$ did not lend her$_i$ broom.

2.2 Quiegolani Zapotec

Quiegolani Zapotec and other Southern Zapotecan languages do not have forms corresponding to reflexive or reciprocal pronouns (Piper 1993).[7] Quiegolani Zapotec does have a construction just like the reflexive of possession construction in Yatzachi Zapotec, however, in which the subject may be null if it is coindexed with the possessor of the object. Some examples are given in (10), where an underscore indicates the position of the missing subject.[8]

(10) a. R-dxiin-t __ x-ten men. Rancho 9a
H-arrive-Neg Pos-ranch 3
They$_i$ didn't arrive at their$_i$ ranch.

b. R-e noo: R-laan noo ts-a noo, per che-bel Hortens 17
H-say 1Ex H-want 1Ex P-go 1Ex but when-if
I said, "I want to go, but only if
y-na de g-weey __ x-pëëd noo.
P-say 2 P-take Pos-child 1Ex
you say that I can take my daughter."

---

[7] In fact, there is no morphological distinction at all between pronouns and reflexives. The regular pronouns are used in both subject and object position. We can see in the Quiegolani Zapotec examples that in the case of first or second person pronouns, the coindexing is clear and an anaphoric reading is given (i) (though singular versus plural is still a problem). In (ii) we see, however, that there is no way to distinguish coreference from noncoreference with third person pronouns.

(i) R-wii noo noo.
H-see 1Ex 1Ex
I see myself. or *We see ourselves.*

(ii) R-wii men men.
H-see 3 3
She/he/they see(s) herself/himself/themselves/her/him/them.

Because of the ambiguity caused by this lack of distinction between anaphors and pronominals, speakers of these languages prefer to use proper names or common nouns rather than third person pronouns. Regnier (1989b) reports that another strategy for a clear reflexive interpretation is to use the morpheme *-ke* (usually a verbal suffix), meaning 'association', attached to the focus marker with the subject focused, as in (iii).

(iii) Laa-ke noo r-wii.
FM-Assoc 1Ex H-see
I see myself.

This construction apparently alters the argument structure of the verb to take only one argument, as in 'I self-see'. In addition, some idiomatic expressions have also been developed to indicate an anaphoric usage.

[8] The examples in this section are taken from Regnier (1989a), with the text name and line number given at the right. Other Quiegolani Zapotec examples in the paper which do not have a text reference come either from Regnier (1989b) or from my own field work with QZ speaker Martín Hernández Antonio in 1991 and 1993. Additional abbreviations used: Assoc=associative action; F=Future aspect; FM=focus marker; Neg=negation marker; Pos=Prefix used on alienably possessed nouns in possessive constructions; Pr=Progressive aspect; S=Stative aspect; Wh=nominal suffix indicating [+wh] feature; 1Ex=first person exclusive pronoun; 2=second person pronoun; 3=third person human pronoun; 3A=third person animal pronoun.

c. Dxe w-dxiin ___ x-ten men — Menmaac 3
already C-arrive Pos-ranch 3
When he$_i$ arrived at his$_i$ ranch,
w-kaa ___ x-kix men chu yag.
C-put Pos-bag 3 belly tree
he$_i$ put his$_i$ bag on a tree.

d. S-ya ___ ru x-yuu mër gol. — Martrist 42
Pr-go mouth Pos-house pigeon male
The male pigeon$_i$ went to his$_i$ house.

Example (10d) verifies that the possessor may be a full nominal phrase (*mër gol* 'male pigeon'), not just a pronoun, and that the possessor of the object of a preposition (*ru* 'mouth')[9] counts as well for this construction.

3. Theoretical Background

The analysis and argumentation are given in terms of Government and Binding Theory (GB) developed in Chomsky (1981, 1982, 1986). The background information on Binding Theory and phrase structure (especially relating to VSO languages) necessary to understand the analysis is covered in the following sections.

3.1 Binding Theory

Binding Theory seeks to explain the distribution of pronouns, reflexives, and full nominal phrases seen in (11) (plus more complex examples, of course).[10]

(11) a. John$_i$ likes himself$_i$.
b. *Himself$_i$ likes John$_i$.
c. John$_i$ likes him$_{j/*i}$.
d. John$_i$ likes John$_{j/*i}$.
e. He$_{j/*i}$ likes John$_i$.

Reinhart (1981) found that the key relationship necessary in binding constructions is c-command, which formally expresses the notion of 'higher in the tree than'. Definitions for c-command and for binding are given in (12) and (13), respectively, where α and β stand for particular categories.

(12) α C-COMMANDS β iff
a. α does not dominate β, and
b. the first branching node that dominates α also dominates β.

---

[9] Body part nouns are used as prepositions in Zapotec. Since possessors follow the noun in Zapotec, the phrase beginning with *ru* could alternatively be analyzed structurally as a possessed noun construction with a stacked possessor, meaning 'the male pigeon's house's mouth (or door)'. Under the possessed noun analysis (10d) would then be viewed as having the same Verb-Object-Possessor structure as the other examples. I see two problems with the possessed noun analysis: a) when the body part term meaning 'mouth' is used as a noun it is written as *ruu* because it is pronounced with a laryngealized vowel which can bear stress, in contrast with the shortened form used here; b) the interpretation of (10d) which parallels the other examples of this construction would incorrectly yield 'the male pigeon's house went to its door'.

[10] Subscripts indicate indexing or reference and * indicates ungrammaticality for the given indexing.

(13) α BINDS β iff

a. α c-commands β, and
b. α and β are coindexed.

A further distinction is made between A-binding and $\bar{A}$-binding by requiring the binder α to be in an argument position (=subject or object position) for A-binding.

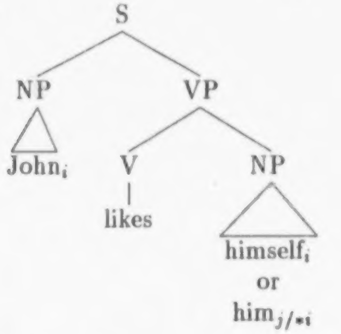
Three principles have been set forth to account for the distinct distributions of anaphors, pronouns, and other nominal phrases. These are given in simplified form in (14), where we can assume that 'locally' is equivalent to 'within the same smallest clause'.

(14) Principles of Binding Theory

A. Anaphors (e.g. reflexives and reciprocals) must be locally A-bound.
B. Pronouns must not be locally A-bound.
C. Nonpronominals must not be A-bound.

These definitions and principles explain the distribution seen above in (11). A simple tree is given in (15) illustrating (11a & c).

(15)



The NP *John*$_i$ (= α) c-commands the NP *himself*$_i$ (= β) because it does not dominate β, and the first branching node above α, which is S, dominates β. This NP *John*$_i$ also binds β because it c-commands β and they are coindexed. Furthermore, α A-binds β since α is in subject position, which is an argument position. Therefore, by Principle A, the reflexive pronoun is licensed or legal because it is locally A-bound. By the same reasoning, the pronoun *him* must not be coindexed with *John*, since pronouns are subject to Principle B and must not be locally A-bound. The rest of the examples in (11) follow similarly: *himself* cannot be in subject position (11b) because it is not locally A-bound there; *John* is subject to Principle C so it cannot be coreferent with anything in argument position that c-commands it.

In addition to overt nominals, GB applies these Principles of Binding Theory to the various types of null elements which can occupy argument positions but must be identified (get their reference) from some other element in the clause. This identification requirement is normally met in one of two ways: (a) null pronouns in *pro*-drop languages are licensed by the agreement markers on the verb in a specifier-head relationship, or (b) the null element is bound by and coreferent with its antecedent. Any set of coindexed elements where one c-commands the other (and thus the former binds the latter) is said to form a chain. The top element in the chain is said to be the head and the bottom element is the tail. Null elements are usually the tail of the chain and the head of the chain normally carries the identifying features.

In analyzing the Zapotec construction, we will need to determine which of the Principles of Binding Theory licenses the null subject and the possessor of the object, as well as how the null subject is identified.

3.2 VSO Phrase Structure

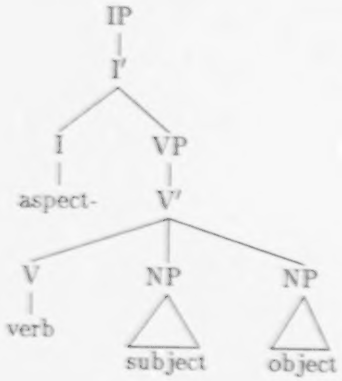
Since c-command and binding are defined in structural terms, the analysis of the Zapotec construction depends upon the phrase structure. GB phrase structure is based upon X-Bar Theory, which says all phrases are projected from the two basic rules in (16a), plus the rules allowing conjunction (16b) and adjunction (16c):

(16) a. XP ⟶ Specifier X′
X′ ⟶ X Complement(s)
b. Z ⟶ Z Conj Z
c. Z ⟶ Z Y or Y Z

The sentence is reanalyzed as an IP, headed by the inflection, and the clause is a CP headed by the complementizer. The rules in (16a) are given for SVO languages like English, but simple rearrangement of the order of elements on the right side will produce the correct orders for SOV, VOS, and OVS languages.

The basic word order in Zapotec is Verb-Subject-Object (VSO). This order does not fall out automatically by a reordering of the elements in the rules. For many years it was simply assumed that VSO languages had a flat structure. A form of the flat structure which follows X-Bar Theory as much as possible is shown in (17).[11]

(17) Flat Structure



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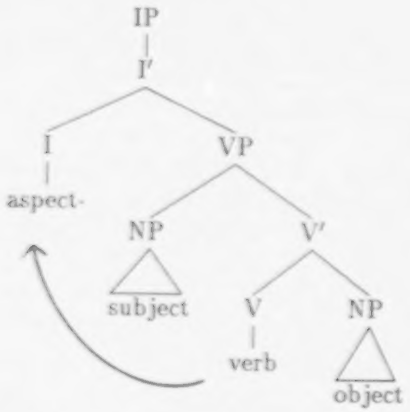
[11] This structure was proposed for Jacaltec by Woolford (1991). It is also basically equivalent to the S-structure obtained under the Subject Adjunction proposal suggested by Choe (1986) for Berber and further developed by Chung (1990) for Chamorro.

Another configuration more in keeping with GB phrase structures proposed for other word orders calls for an underlying SVO structure with the verb then moving up to I, as shown in (18).[12]

(18) Verb Movement



I argue in Black (1994) that the Verb Movement account is correct for Quiegolani Zapotec.[13] We will see, however, that the binding construction under consideration is problematic for both phrase structure proposals.

4. Analysis of the Zapotec Binding Construction

In 'normal' binding constructions, the referentially independent element precedes and c-commands the referentially dependent element, making the term 'antecedent' meaningful. In the Zapotec constructions under consideration here, however, it is the preceding and c-commanding element, the subject, that is referentially dependent on the possessor of the object. This section clarifies the structural problem and explains why an incorporation analysis is not plausible for this data, and then outlines the proposed analysis.

4.1 The Structural Problem

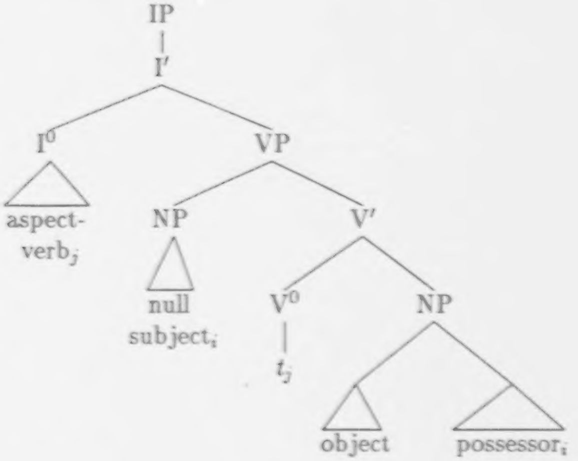
As verified in the S-structure trees in (19)–(20), there is no way under either the Verb Movement or the Flat Structure proposals to have a normal c-command relationship between the possessor of the object and the subject. In the Verb Movement account (19), the subject is in the specifier of VP, well above the possessor of the object.

---

[12] The Verb Movement account was proposed by McCloskey (1991) and Koopman & Sportiche (1991), among others.

[13] I assume this is true of all of the Zapotecan languages. Black (1993) shows that the Verb Movement proposal accounts nicely for the negation constructions in Mitla Zapotec and Isthmus Zapotec as well as in Quiegolani Zapotec.

(19) Verb Movement

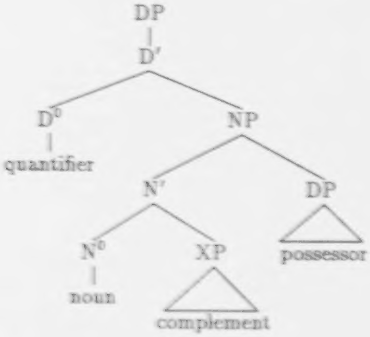

IP
I′
I^0
aspect-verb$_j$
VP
NP
null subject$_i$
V′
V^0
t_j
NP
object
possessor$_i$

Even in the Flat Structure account (20), where the subject and the object mutually c-command each other, the possessor of the object is inside the object and cannot c-command up and out of it.[14]

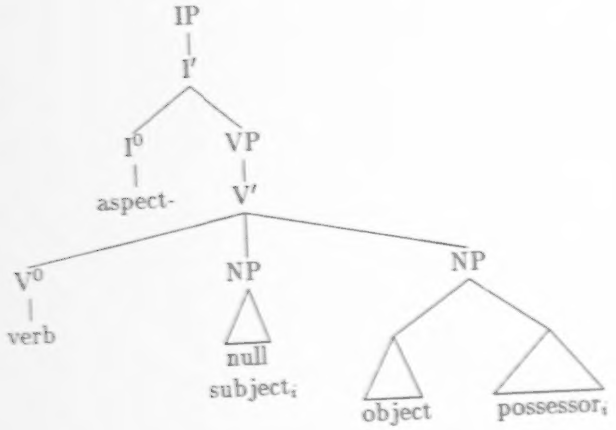
---

[14] I show in Black (1994) that the nominal structure of Quiegolani Zapotec requires the DP Hypothesis (Abney 1987, Stowell 1989) where there are two complete levels and the possessor is in the specifier of the NP, as shown in (i). This further clarifies the impossibility of the possessor of the object c-commanding the null subject, even given the Flat Structure.

(i)


DP
D′
D^0
quantifier
NP
N′
N^0
noun
XP
complement
DP
possessor

(20) Flat Structure



We need to verify that these problematic constructions really consist of a verb followed by a null subject and then an object with its possessor and are not instead simply examples of VOS order. All of the available evidence points to the conclusion that the final element is indeed the possessor and not the (displaced) subject.

First, the object and its possessor can be focused together, as in the Yatzachi Zapotec example (21) (compare to (7d)), indicating that they form a single constituent. A coindexed pronoun must overtly mark the subject on the verb when this focusing occurs, however, showing that the null subject is only licensed very locally.

(21) Liš Bed-ənʔ ba-j-g^{w}ia-boʔ.
paper Peter-the already-H-look.at-3F
Peter$_i$'s paper, he$_i$ is already looking at.

Further, strict VSO order is required for the correct interpretation of grammatical functions within the clause since there is no overt case marking. VOS word order, which could be obtained by rightward movement of the subject (or by the optionality of Subject Adjunction movement under Chung's (1990) proposal), is otherwise unattested in Zapotec.

4.2 The Incorporation Account

Another way to obtain surface VOS word order from the underlying VSO order would be to incorporate the object into the verb. Woolford (1991) notes that Jacaltec avoids the problem of the reflexive c-commanding its antecedent in the Flat Structure by incorporating the reflexive into the verb instead of placing it in object position, as shown in (22) (taken from Craig 1977:148). *Sba* is argued to have incorporated into the verb, since VOS order is never allowed in Jacaltec either.[15]

(22) [Xil sba] naj pel.
saw self Cl Peter
Peter saw himself.

One might wonder, then, if an incorporation analysis would work for the Zapotec constructions, which have the same superficial word order. Incorporation does occur in Zapotecan languages, especially when the object is a body part noun, as will be exemplified in (26). Either incorporation or lexical compounding is undoubtedly the best analysis of the many compounds using 'liver' attested throughout the language family, such the Quiegolani Zapotec examples in (23).

---

[15] Cl stands for noun class marker.

(23) a. Lex n-uu lextoo man: Txu maa-zh maa. Mansnake 3
later S-be liver 3 who 3A-Wh 3A
Later he wondered, "What animal was it?"

b. Z-a lextoo Susan g-an pa gos w-dee men lo Susan
Pr-go liver Susan P-know what thing C-give 3 face Susan
Susan remembers what things she received
chene w-zaa Susan iz.
when C-complete Susan year
when she had her birthday.

Unfortunately, though initially attractive, an incorporation analysis does not account for all the facts in these Zapotec binding constructions.

First, the object is a noun requiring a possessor. The nominal phrase or pronoun following this object serves as the possessor, not as the subject (though it is coreferent with the subject). This is confirmed in Juarez Zapotec, where some of the subject and possessor pronouns differ. Nellis & Nellis (1983:379–380) note that in these constructions for both reflexive and reciprocal uses, it is always the possessive pronoun form that appears, rather than the subject form of the pronoun. Example (24) illustrates this: the possessive pronoun is used in the simple grammatical example (24a), but replacing the possessive pronoun with a subject pronoun yields the ungrammatical example (24b).

(24) a. quî-ní̱ʔį
wash-hand:3Pos
He$_i$ washed his$_i$ hands.

b. *quî-ná̱ʔ-ą
wash-hand-3Subj
(He$_i$ washed his$_i$ hands.)

Further, alienably possessed nouns require some special marking when they are possessed. Recall that in Yatzachi Zapotec, *če* 'of' is added before the possessor, verifying again that the overt nominal is the possessor in these constructions.

(25) Bito b-nežR^w bg^{w}ex če noʔol-ənʔ.
not C-give broom of woman-the
The woman$_i$ did not lend her$_i$ broom.

We can also argue syntactically against an incorporation analysis for these constructions. In a regular incorporation construction the object appears inside the negative marker in Quiegolani Zapotec, as shown in (26). Black (1993) shows that this accords with the Verb Movement proposal for the phrase structure, where the whole verbal complex, including the incorporated object, moves to I^0, across the subject[16] and then to Neg^0 (the head of a higher functional projection NegP).

---

[16] A subject is required in negative commands in Zapotec.

(26) G-ix-nii-t de lo pis. Bathroom 18
P-put-foot-Neg 2 face floor
Don't step on the floor.

In contrast to the order in (26), negation is marked *before* the object in a reflexive of possession construction, as shown in (27). The incorporation analysis is thus unlikely, since the object is not part of the verbal complex which undergoes head movement.

(27) a. R-dxiin-t __ x-ten men. Rancho 9
H-arrive-Neg Pos-ranch 3
They$_i$ didn't arrive at their$_i$ ranch.

b. W-tsalo-t __ x-mgyeey men, Rancho 43
C-meet-Neg Pos-man 3
She$_i$ didn't meet her$_i$ husband,
s-teb koo z-a x-mgyeey men.
F-one side Pr-go Pos-man 3
because he went the other way.

This argument is strengthened by the fact that the adverbials that may come at the end of the verb directly follow the negation marker in Quiegolani Zapotec (28). If these adverbials were present in the examples in (27), they would also come between the verb (after the negation marker) and the object, unlike the incorporation example in (26) where the verb and the incorporated object form a unit before the affixes are added.[17]

(28) G-oo-t-re-ke noo nis.
P-drink-Neg-More-Assoc 1Ex water
I will not drink more water either.

I therefore claim that incorporation is not a plausible account for all of the forms of this Zapotec binding construction, especially where the object is not a body part noun.

4.3 Proposed Analysis

Given that the final element is the possessor of the object and the subject is null, we are left with a need to redefine the anaphoric binding relationship for these particular constructions. To do this, the general requirements of anaphora constructions must be considered: locality, one element c-commanding and A-binding the other, licensing of each element by the Principles of Binding Theory, and the identification of the referentially dependent element.

This binding relationship allowing the null subject is very local, since it holds only within a single clause, thus meeting the first requirement of an anaphoric construction. Further, we have seen that although the possessor of the object does not c-command the null subject under either of the phrase structure proposals for VSO word order, the null subject does c-command the possessor of the object. Since these two elements are also coindexed, an A-chain[18] is formed and the null subject A-binds the possessor of the object.

---

[17] Chuck Speck (p.c.) reports that in Texmelucan Zapotec, where the construction is limited to only certain verbs and the object must be a body part noun, the adverbials can occur either directly after the verb stem (i) or between the object and its possessor (ii). (3M=third person masculine pronoun.)

(i) R-guuñ zi'l tooy.
H-scratch only head-3M

(ii) R-guuñ too zi'l yu.
H-scratch head only 3M
He just scratched his head.

Incorporation of the body part noun is clearly an option in Texmelucan Zapotec.

Which of the Principles of Binding Theory apply is a harder question. Looked at outside of this construction, the possessor of the object is either a pronoun or a full nominal phrase, thus falling under either Principle B or C, both of which prohibit local A-binding.[19] Conversely, we would expect the null subject to be a type of null anaphor which must itself be locally A-bound, rather than locally A-binding an overtly identified nominal.

The key difference between this Zapotec construction and the more common reflexive construction is simply that the anaphor and the antecedent have switched places. (29) illustrates the affect of this one change: if it was applied to English we would expect (29a) to be grammatical but not (29b or c).

(29) a. Himself$_i$ sees John$_i$.
b. *Himself$_i$ said that John$_i$ saw Susan.
c. *Himself$_i$ said that Susan saw John$_i$.

Clearly, a local A-chain is still required in these Zapotec constructions, but it is the tail rather than the head of the chain that is identified. Judith Aissen (1992 class lectures) reported a similar identification requirement in Tzotzil, where the tail of an A-chain which is first or second person must be identified with respect to number, while the head would not be so marked.

I propose that the Principles of Binding Theory be reworded in terms of A-chains instead of A-binding to allow parameterization of whether it is the head or the tail of the A-chain that is the referentially dependent element. This dependent element would then be identified through the A-chain by the referentially independent element. The revised principles (still in simplified form) would read as in (30), where {head/tail} indicates a parameter that must be set.

---

[18] An A-chain simply means a chain of coindexed elements where the head of the chain is in an argument position. In contrast, an Ā-chain or a *wh*-chain has the head of the chain in a non-argument position (either a specifier position or adjoined).

[19] Southern Zapotecan languages freely allow repetition (and A-binding) of both pronominals and nominal phrases. The Quiegolani Zapotec texts (Regnier 1989a) are full of examples like those in (ii)–(iii).

(i) R-wii noo noo.
H-see 1Ex 1Ex
I see myself. or *We see ourselves.*

(ii) R-e Mblid lo xsaap Mblid: Bru 14
H-say Mary face daughter Mary
Mary said to her daughter:

(iii) W-chug mẽẽk duu, porke w-laan mẽẽk nis. Menmaac 35
C-cut dog rope because C-want dog water
The dog cut the rope, because he was thirsty.

This is probably due to the lack of reflexive elements in these languages, because such repetition is not allowed in other parts of the Zapotecan language family which have reflexive pronouns. See Piper (1993) and Black (1994:Chap. 5) for more examples. Lasnik (1989) argues for parameterization of Principle C based upon similar examples in Thai and Vietnamese.

(30) Principles of Binding Theory

A. Anaphors (e.g. reflexives and reciprocals) must be the {head/tail} of a local A-chain.
B. Pronouns must not be the {head/tail} of a local A-chain.
C. Nonpronominals must not be the {head/tail} of an A-chain.

Setting the parameter to 'tail' in each case would yield the equivalent of Chomsky's principles. The null subject in these Zapotec constructions would require that the parameter in Principle A be set to 'head'. Looking at this construction only, Principles B and C would also choose the 'head' option. More research is needed to determine what parameter settings would be appropriate to account for the full distribution of nominals within each particular Zapotec language, if this is indeed possible.[20]

5. Conclusion

The Zapotec binding constructions have been shown to be truly upsidedown or backwards from what has been commonly described in other languages. The overt word or phrase really is the possessor of the object and not simply a displaced subject. The null subject is not licensed by *pro*-drop, since the subject must be present in all other constructions. Further, an incorporation analysis was argued to be implausible for the specific binding construction being considered. The coreferential elements still form a local A-chain, however, thus conforming to the requirements of Binding Theory if we parameterize the identification feature to allow the tail of the chain to carry the indentifying information and the head to be the referentially dependent anaphor in these special constructions.

References

Abney, Stephen. 1987. *The English Noun Phrase and its Sentential Aspect*. Cambridge, MA: MIT Dissertation.

Black, Cheryl A. 1993. Negative Concord with obligatory fronting in Zapotec. *Syntax at Santa Cruz* Vol. 2, ed. by Geoffrey K. Pullum and Eric Potsdam, 1–20. Santa Cruz, CA: University of California, Santa Cruz.

Black, Cheryl A. 1994. *Quiegolani Zapotec Syntax*. Santa Cruz, CA: University of California, Santa Cruz Dissertation.

Butler, Inez M. 1976. Reflexive constructions of Yatzachi Zapotec. *International Journal of American Linguistics* 42.331–337.

Choe, Hyon-Sook. 1986. An SVO analysis of VSO languages and parameterization: A study of Berber. *NELS 16*, ed. by S. Berman, J. Choe, & J. McDonough. Amherst, MA: GLSA, University of Massachusetts, Amherst.

Chomsky, Noam. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.

Chomsky, Noam. 1982. *Some Concepts and Consequences of the Theory of Government and Binding*. Cambridge, MA: MIT Press.

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[20] Another, more abstract possibility (but which does not require parameterization of the Principles of Binding Theory) is that the null subject is an expletive-type element in the A-chain which could locally c-command the overt possessor and take its reference from the possessor. This would parallel the analysis of the scope-markers in *wh*-chains in the partial *wh*-movement allowed in German and Romani analyzed by McDaniel (1989) (see also Black 1994:Appendix), where the scope marker fills the normal position for question words and the *wh*-phrase is allowed to remain in the specifier position of a lower, non-interrogative clause. If this analysis proved to be viable, it would provide an interesting point of connection between A-chains and Ā-chains.

Chomsky, Noam. 1986. *Barriers*. Cambridge, MA: MIT Press.

Chung, Sandra. 1990. VP's and verb movement in Chamorro. *Natural Language and Linguistic Theory* 8.559–620.

Craig, Colette. 1977. *The Structure of Jacaltec*. Austin, TX: University of Texas Press.

Grice, H. Paul. 1975. Logic and conversation. *Syntax and Semantics: Speech acts*, ed. by Peter Cole and Jerry L. Morgan. New York: Academic Press.

Koopman, Hilda and Dominique Sportiche. 1991. On the position of subjects. *The Syntax of Verb-Initial Languages*, *Lingua* Special Edition, ed. by James McCloskey. 211–258. Amsterdam.

Lasnik, Howard. 1989. On the necessity of binding conditions. *Essays on Anaphora*. Dordrecht: Kluwer Publishing Company.

McCloskey, James. 1991. Clause structure, ellipsis and proper government in Irish. *The Syntax of Verb-Initial Languages*, *Lingua* Special Edition, ed. by James McCloskey. 259–302. Amsterdam.

McDaniel, Dana. 1989. Partial and multiple wh-movement. *Natural Language and Linguistic Theory* 7.565–604.

Nellis, Neil and Jane Goodner de Nellis. 1983. *Diccionario Zapoteco: Zapoteco de Juarez*. Serie de Vocabularios y Diccionarios Indígenas. Número 27. México D.F.: Instituto Lingüístico de Verano. Also includes a Grammar by Doris A. Bartholomew.

Piper, Michael J. 1993. La correferencia en el zapoteco del sur: hacia una reformulacíon de la teoría de ligamiento. *Actas del X Congreso Internacíonal de la Asociacíon Lingüística y Filológica de la América Latina*. Veracruz, Mexico.

Regnier, Randy. 1989a. Collection of unpublished Quiegolani Zapotec glossed texts. Mexico Branch: Summer Institute of Linguistics.

Regnier, Randy. 1989b. Quiegolani Zapotec grammar. Mexico Branch: Summer Institute of Linguistics, ms.

Reinhart, Tanya. 1981. Definite NP anaphora and c-command domains. *Linguistic Inquiry* 12.605–635.

Reinhart, Tanya and Eric Reuland. 1993. Reflexivity. *Linguistic Inquiry* 24.657–720.

Stowell, Tim. 1989. Subjects, specifiers, and X-Bar theory. *Alternative Conceptions of Phrase Structure*, ed. by Mark Baltin and Anthony Kroch. 232–262. Chicago, IL: The University of Chicago Press.

Woolford, Ellen. 1991. VP-internal subjects in VSO and nonconfigurational languages. *Linguistic Inquiry* 22.503–540.

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On Generating the Greek Noun Phrase

Cheryl A. Black and Stephen A. Marlett

This article examines the basic noun phrase of Koiné Greek and proposes an analysis which is consistent with current views on phrase structure within X-bar theory. The fact that the syntactic distribution of quantifiers, demonstratives and descriptive adjectives is different leads to the (not surprising) proposal that these are distinct word classes in Greek, as in many other languages. The distribution of articles is given serious attention and is found to support the relatively recent proposal (the DP hypothesis) that the traditional noun phrase is best analyzed as a determiner phrase which may then take an NP as its complement..

> "It is a curious thing how traditionalism in linguistic teaching has held in slavery so many men who teach Greek today precisely as it was done a hundred years ago." [From the introduction by A. T. Robertson to Davis 1923]

1. Introduction

The tables of contents of most Classical or Koiné Greek grammars reveal an interesting similarity. One quickly sees how much attention is paid to morphological issues and how little is paid to syntax. The reasons for this state of affairs are somewhat understandable given the tradition in which the study of Greek grammar developed and the fact that syntax is a relatively new domain of study as such in linguistics. However, despite the interest in syntax within the past forty years in American linguistics and significant advances in our understanding of it, so far as we know, little progress has been made in the study or teaching of Classical or Koiné Greek syntax.[1]

This is not to say that syntax has received no consideration in descriptions or presentations of Greek in the past. But consider the description of the Noun Phrase, for example. Whereas some emphasis is given to the description of particular parts (such as when the article is used and how certain differences in word order are to be understood), there is never a simple overview of the facts. The present study is intended as a first step to remedy the situation. As such, we do not examine all aspects of Noun Phrases in Greek. We do not take up relative clauses, conjoined phrases, appositives, or disjunctive phrases, although these are also very interesting and are worthy of careful study. But it also becomes clear that when the facts are laid out, and when clear and explicit analyses are proposed and defended, many other areas of research beg to be re-opened.

The presentation we give departs from traditional treatments in a number of ways. First, we propose that the traditional class of Adjective in Greek is in actuality best divided into three

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[1] We thank Andy Black, Jim Meyer, Micheal Palmer, Jim Watters and Lindsay Whaley for their helpful comments on this paper. The analysis presented here had its beginning in two seminars on Greek syntax given as part of the Summer Institute of Linguistics program at the University of North Dakota several years ago.

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Volume 40, 89-105.

classes: Quantifier, Demonstrative, and Adjective.[2] As we show, these words have different syntactic properties, and the Noun Phrase in Greek receives adequate description only when the three are clearly distinguished. The distinction is alluded to in many earlier treatments, of course, but the morphological similarity of these classes has overshadowed their syntactic differences.

Second, partly as a result of the recognition of Quantifiers and Demonstratives, we abandon the descriptive terms *predicate position* and *attributive position*. These terms are inadequate, unnecessary, and misleading in the ways they are often used.

Third, we propose a view of the Noun Phrase (actually, the Determiner Phrase, as we show below) which is configurational, in line with current syntactic theories. The phrase is not simply a string of words, one following the other, but it has a hierarchical structure. By separating the configuration or dominance of the elements from their linear order, we are able to provide a much more adequate account of the distribution of elements in the phrase.

The general approach to the structure of the noun phrase taken here is that of X' (X-bar) theory. We introduce the key concepts of this theory as needed. Introductions to the theory may be found in various works on generative grammar, including Sells 1985 and Haegemann 1994 (based on Chomsky 1981 and Chomsky 1986).

In this article we take up four phrase structure functions: heads and complements (in section 2), adjuncts (in section 3), and specifiers (in section 4). Sections 5 through 7 are devoted to other interesting facts about the Greek noun phrase.

2. Heads and Complements

A phrase has a *head* which defines the phrase's identity: Noun Phrases have Nouns as head, Prepositional Phrases have Prepositions as head, Adjectival Phrases have Adjectives as head, and so forth.[3] One of the recent innovations in syntactic theory has been to propose that a phrase such as *the tree* is in actuality a Determiner Phrase, with a Determiner as head (Abney 1987 and Stowell 1989). We adopt a version of this hypothesis for our account of Greek although we do not argue for its superiority over a more traditional analysis.[4] The Determiner of interest here is the Article, which figures prominently in Greek. Despite this innovation, Noun Phrases are still part of the analysis, as we show.

Another constituent of a phrase is the *complement*. As the name suggests, the complement is not a simple modifier of the head (such modifiers are discussed in section 3, where they are called adjuncts), but it is more tightly related to the head. For example, in the VP the direct object of the verb is a complement; the phrase *our sins* is the complement of the verb *forgive* in the phrase *forgive our sins*. We propose that in the phrase την αφεσιν των 'αμαρτιων (Co 1:14) the των 'αμαρτιων is the complement of the noun αφεσιν. We show more examples of noun complements below.

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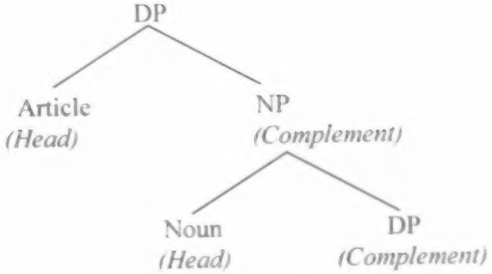
[2] This part of our analysis might have been novel even a few years ago when we were first discussing it in classes, but after preparing the present manuscript we have learned of two publications that present a similar analysis (Palmer 1995 and Whaley 1995). Actually, the fact that traditional grammars spend so much time discussing these classes of words in special sections makes this part of our analysis almost self-evident.

[3] Adjective phrases very often consist of simply the adjective in Greek. Examples with more complex structure include πληρης λεπρας *full of leprosy* Lk 5:12, and πλουσιος σφοδρα *very rich* Lk 18:23.

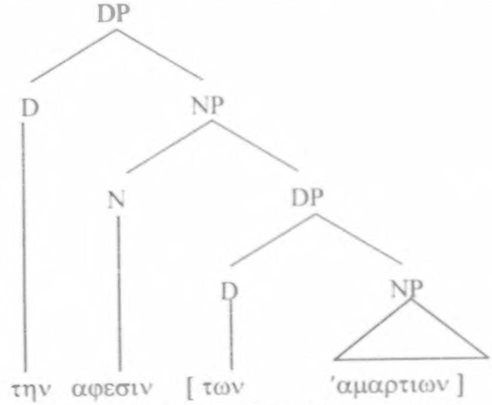
[4] A major reason for choosing the DP analysis is that it permits a better account of the Quantifiers and Demonstratives, which are analyzed as specifiers in section 4. It also provides an account of the repeated Article phenomenon discussed in section 5. Given the complexity of these facts and the problems they present for earlier forms of syntactic theory, it may be understandable that Greek does not figure in the modern linguistic literature.

(1)



At this point we may diagram the functional notions head and complement as shown in (1). We use the abbreviation DP for Determiner Phrase, and NP for Noun Phrase. The DP has a Determiner (always an Article in the case of Greek) as its head, and it takes an NP as its complement. The NP has a Noun as its head and it takes another DP as its complement. This structure presents two types of information. One is the configurational structure of the DP and NP, of which the head and complement structure is most relevant to us here. The other type of information is linear order; the structure tells us that the head precedes the complement. As far as the Determiner (Article) is concerned, we know that in Greek it always precedes its complement; this is also the usual order with Nouns and their complements. Example (2) illustrates the typical order (head-complement) within the NP, and example (3) illustrates the less frequent order (complement-head) within the NP.[5] (The use of a triangle indicates that the internal structure of the phrase is not being shown for the sake of presentation, since it is irrelevant to the point.) To envision our proposal, think of the highest NP node as the hook on a coat hanger. The coat hanger can rotate, sometimes putting the Noun last, sometimes putting the Noun first.[6]

(2)



the forgiveness of sins Co 1:14

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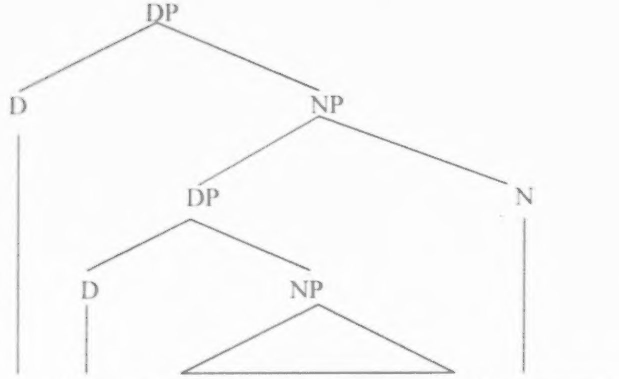
[5] We know that both head-complement and complement-head order are attested when a verb is the head. The flexibility of word order is discussed more below.

[6] Another example of the pre-head complement position is της ['υμων] οικοδομης *your edification (the edification of you)* 2 Co 12:19.

The structure we are proposing does not follow Kayne's (1994) restricted view of phrase structure where all heads, specifiers and adjuncts must be on the left.

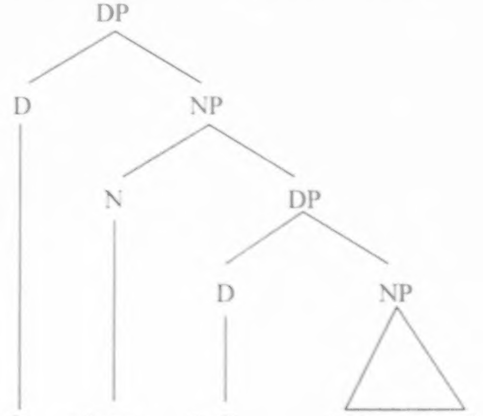
(3)



την [του κυριου 'ημων Ιησου Χριστου] επιγνωσιν
the knowledge of our Lord Jesus Christ 2 Pe 1:8

Under this account of DPs, the head Determiner (article) is not always overt; we represent the lack of an overt head with a null sign, as shown in (4).[7]

(4)



∅ αφεσιν [∅ 'αμαρτιων]
forgiveness of sins Ac 5:31

Other examples of complements of NPs include the following (all with head-complement order, all with genitive DP complements): την δωρεαν [του 'αγιου πνευματος] *(the gift of the Holy Spirit)* Ac 2:38; της δωρεας [της δικαιοσυνης] *(the gift of righteousness)* Ro 5:17; την δωρεαν [της χαριτος του θεου] *(the gift of the grace of God)* Ep 3:7; μαρτυρα [της αναστασεωσ αυτου] *(a witness of his resurrection)* Ac 1:22; τη αναιρεσει [αυτου] *(the killing of him)* Ac 8:1; της γνωσεως [της δοξης του θεου] *(the knowledge of the glory of God)* 2 Co 4:6; επαγγελιαν [ζωης της εν Χριστω] *(the promise of life in Christ Jesus)* 2 Ti 1:1; τον φοβον [των Ιουδαιων] *(the fear of the Jews)* Jn 7:13; τη κλασει [του αρτου] *(the breaking of bread)* Ac 2:42, among many others.

The complement may also be a finite clause in Greek, comparable to the clause following the noun *news* in the noun phrase *the news that you had won the election.*[8]

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[7] An alternative analysis would be to avoid the use of the null heads and strip these representations of all structure that dominates the null elements. For our purposes here, the differences between these analyses is not important.

[8] See section 7 where we discuss non-finite clauses that occur in DPs.

(5) φασις ... ['οτι συγχυννεται Ιερουσαλημ]
the report ... that all Jerusalem was in confusion Ac 21:31

(6) ελπιδα μου ['οτι εν ουδενι αισχυνθησομαι]
my hope that I will be ashamed about nothing Ph 1:20

The distinction between complements and adjuncts enables us to make an explicit formal difference between a phrase like την δωρεαν [της χαριτος του θεου] *(the gift of the grace of God*, Ep 3:7), which contains a complement (since the grace of God is what is given – the so-called 'objective' genitive), and την δωρεαν [του θεου] *the gift of God* (Ac 8:20), which has a modifier that is not a complement but rather an adjunct (since God is the giver of the gift – the 'subjective' genitive). We discuss such modifiers in the following section.[9]

3. Adjuncts

Nouns are often modified by a variety of phrases; some of these modifiers are called *adjuncts*. Adjuncts are less tightly bound semantically as well as structurally to the head which they modify. In Greek, we find adjunct Adjective Phrases (APs), Verb Phrases (VPs), and Prepositional Phrases (PPs), as well as adjunct DPs. In many instances, only one word actually instantiates the adjunct phrase. For example, the modifier may be a simple adjective, as in *black dogs*. But since there is the potential for fuller expansion, as in *very black dogs*, even simple adjectives are best viewed as minimal Adjective Phrases which happen to have nothing modifying the Adjective.

Simple examples of each type of adjunct are given below using labeled brackets to identify the kind of modifying phrase that it is.

(7) δυναμει [μεγαλη $_{AP}$]
great power Ac 2:2

(8) ανδρα [αποδεδειγμενον απο του θεου .... $_{VP}$]
a man who was accredited by God .... Ac 2:22

(9) τη εκκλησια [εν τη ερημω $_{PP}$]
the church in the desert Ac 7:38

(10) της βασιλειας [του θεου $_{DP}$]
the kingdom of God Ac 1:3

(11) 'ο κριτης [της αδικιας $_{DP}$]
the unjust judge Lk 18:6

The verb of an adjunct VP occurs as a participle, as in (8) and (13) below.[10] In Greek, DPs which are adjuncts of DPs usually occur in the genitive case, as in (10) and (11). Adjunct PPs usually look much like their English counterparts. However, adjuncts sometimes have a repeat of the article before them, as seen in the following examples (in which we bracket it outside of the AP, PP, etc.); we return to this characteristic in section 5.

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[9] The distinction between complements and adjuncts is one which the theory makes and which we would like to make based on the meaning distinctions mentioned here. However, the distinction is not that clearly made in Greek, as it turns out. Certain predictions which the structural distinction makes are not borne out. See section 4 .

[10] We distinguish between adjunct VPs, which are participles, and infinitival relatives. Infinitival relatives have an infinitive, sometimes preceded by the article του, and the subject (if expressed) in the genitive case. Three examples are given below, but we do not discuss this construction more here.

(i) ευκαιριαν [του παραδουναι αυτον ...]
opportunity to betray him Lk 22:6

(ii) 'ο χρονος [του τεκειν αυτην]
the time for her to give birth Lk 1:57

(12) του πνευματος [του ['αγιου $_{AP}$]]
the Holy Spirit Ac 2:33

(13) της οργης [της [ερχηομενης $_{VP}$]]
the coming wrath 1 Th 1:10

More than one adjunct may occur in a phrase, as illustrated by the following examples:

(14) του ['αγιου $_{AP}$] παιδος [σου $_{DP}$]
your holy servant Ac 4:30

(15) 'ωρα [τριτη $_{AP}$] [της 'ημερας $_{DP}$]
the third hour of the day Ac 2:15

(16) του λαου [μου $_{DP}$] [του [εν Αιγυπτω $_{PP}$]]
my people in Egypt Ac 7:34

(17) την 'ωραν [της προσευχης $_{DP}$] [την [ενατην $_{AP}$]]
the ninth hour of prayer Ac 3:1

(18) 'ημεραν [κυριου $_{DP}$] [την [μεγαλην και επιφανη]$_{AP}$]
the great and glorious day of the Lord Ac 2:20

(19) ανδρες [ευλαβεισ $_{AP}$] [απο παντος εθνουσ των 'υπο τον ουρανον $_{PP}$]
devout men from every nation under heaven Ac 2:4

(20) ['υμων $_{DP}$] την αγαθην [εν Χριστω $_{PP}$] [αναστροφην $_{AP}$]
your good conduct in Christ 1P 3:16

Adjuncts may appear before or after the head noun in Greek.[11] In the preceding examples, most have followed. In the following examples, they precede the head noun.

(21) των [Αιγυπτου $_{DP}$] θησαυρων
the treasures of Egypt Hb 11:26

(22) των [εν Δαμασκω $_{PP}$] μαθητων
the disciples in Damascus Ac 9:19

(iii) εξουσιαν [εκβαλλειν τα δαιμονια]
authority to cast out demons Mk 3:15

[11] Traditional grammars name various positions for adjectives: attributive and predicate, which are sometimes divided into first and second attributive, first and second predicate positions. Despite their long tradition, these labels are misleading in the way they are used in traditional Greek grammar, however. The problem is made worse by the failure to distinguish between the word classes Quantifiers, Demonstratives, and Adjectives, as we show below. Since the descriptive problem is so pervasive (one finds it as far back as Goodwin 1887, but it is undoubtedly much older), it is worth describing in a bit more detail.

Grammars first typically label two positions of the adjective as 'attributive': when it comes between the article and the noun and when it follows a noun and is preceded by an article. Despite the fact that the adjective may be in construction with the noun (i.e., be part of the same noun phrase) and yet be in some other position, it is otherwise said to occur in a 'predicate' position. As a result, quantifiers and demonstratives are taken as adjectives which virtually always occur in a predicate position, although they obviously modify the noun. The terminology, meant to bring clarity to a complicated situation, actually obfuscates it.

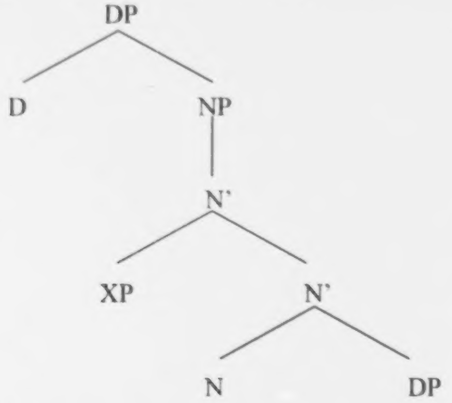
(23) του ['αγιου $_{AP}$] πνευματος
the Holy Spirit Ac 1:8

(24) το ['υπερβαλλον $_{VP}$] μεγεθος
the surpassing greatness Ep 1:19

These facts show that the grammar of Greek does not strictly fix the order of adjuncts with respect to the head noun.[12]

The configuration of the phrase is also a bit flexible. Adjuncts may occur in two positions; they may branch from two intermediate nodes. Consistent with work on phrase structure in other languages, we propose that an intermediate node, called N' (N-bar) occurs between the NP node and the head, as shown in (25).[13] In this schematic diagram, the abbreviation XP represents the range of adjuncts permitted (XP = any phrase, such as NP, VP, DP, or AP).[14]

(25)



This configuration, coupled with an explicit statement of the lack of fixed order between XP and N' (i.e. the *coat hanger* can rotate allowing the XP to occur to the right of N'), generates phrases like those illustrated above (except for the repeated article which sometimes occurs at the beginning of the adjunct). It also predicts that if a complement and adjunct co-occur, the complement will be closer to the head than the adjunct is.[15]

If we consider only heads and adjuncts for the moment, we see that the proposed structure accounts for the word orders Article-Noun-XP and Article-XP-Noun. However, we also need to generate the relatively common order XP-Article-Noun. This order is illustrated by the following examples:

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[12] Traditional Greek grammars make various and contradictory claims about which is the special order and how it affects the meaning. The facts are not clear. Consider, for example, how Lk 8:8 has the contrastive adjective αγαθος in post-nominal position, but Lk 8:15 has the contrastive adjective καλος in pre-nominal position. On the other hand, Lk 4:36 has the non-contrastive adjective ακαθαρτος in pre-nominal position, and Lk 8:29 has the same non-contrastive adjective in post-nominal position. Mackridge 1985 makes the claim that in Modern Greek the post-nominal position give special emphasis (p. 194).

[13] See Palmer 1995 for a similar treatment which is more traditional than ours in that noun phrases are NPs and not DPs. A comparison of this analysis with ours must wait for another time.

[14] The proposed structure also permits the necessary recursion, allowing several adjuncts in the same phrase.

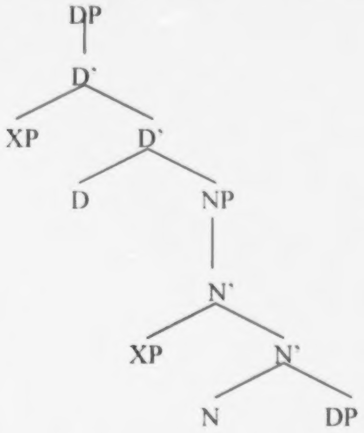
[15] We have found no evidence yet that is counter to this prediction. But see example (82) in which the complement is at the edge of the DP.

(26) [του αρχιερεως]$_{\text{DP}}$ τον δουλον
the servant of the high priest Lk 22:50

(27) [του κυριου]$_{\text{DP}}$ 'ο λογος
the word of the Lord Ac 19:20

We propose that these adjuncts modify the DP and are adjoined to D' (on either side) with a rule similar to that for adjuncts to N', as shown in the following structure. 2

(28)

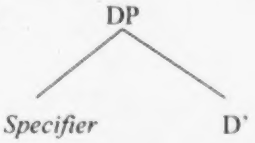


The structure in (28) summarizes what we have proposed so far. The noun may have a complement DP (see the bottom of the diagram). Adjuncts may also modify the NP; these are slightly more removed structurally from the head noun. The head of the DP, namely the Article, takes the NP as its complement. Adjuncts may also modify the DP; these are also structurally more removed from the noun than are the NP adjuncts.

4. Specifiers

The final type of phrase structure function that we need to present is that of *specifier*. The specifier is something like an introducer of the phrase. The specifier is typically the highest element in the phrase and can be either on the right or the left, or both, depending on the language. It occurs directly under the XP, on the same level as the X'. In English, it occurs to the left of the X'; in Greek, it may occur on the right as well as on the left. We present this schematically below.

(29)



We propose that the DP in Greek has two classes of specifiers: Quantifiers and Demonstratives.[16] We also propose that these classes of specifiers are different in their configurational relation to the DP, which fact makes Greek quite different from English. In this respect, the structural analysis we present below departs from that which is typically found in linguistic textbooks.[17] The specifiers in Greek fit into the structure as shown in (30).[18]

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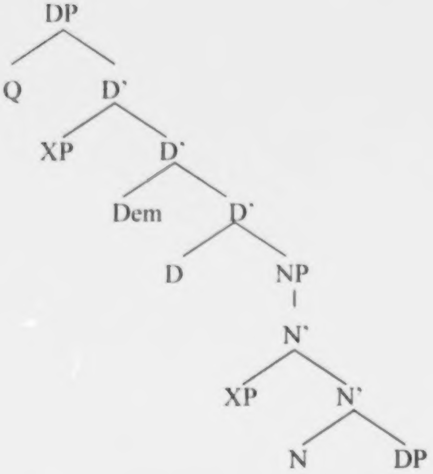
[16] Mackgridge 1985 shows that the facts of Modern Greek are similar.

[17] Abney 1987 proposes for English that possessors (such as *the teacher's*) are the specifier of DP while Articles and Demonstratives are exclusively heads of DP. The same account is not plausible for

(30)



The class of Quantifiers is very small, and includes the words πας *all*, 'απας *all*, 'ολος *all*, and perhaps a couple of other words.[19] Not all quantifying words belong to this class, however: words like πολλας *many* are simply adjectives. The difference between a quantifying adjective and a Quantifier is determined by whether the word has the syntactic properties of one or the other. As we show below, the two are quite different.

Demonstratives co-occur with the article in Greek (unlike in English, since we don't say in English *the this boy* or *this the boy*).[20] There are four demonstratives in Greek. Three are definite (and most often co-occur with the article): 'ουτος *this*, εκεινος *that*, and the emphatic

---

Greek, since we have seen that possessors can occur in non-initial and/or non-final positions. Furthermore, Demonstratives and Articles frequently co-occur in Greek, so separate positions are needed.

The NP which is the complement of the Article also has a specifier position available in X' theory. Demonstratives cannot be analyzed as specifiers of the NP, however, because they occur before the Article, not following it as would be predicted (see examples (31)-(35)). Nor are possessor DPs correctly analyzed as specifiers of the NP which is the complement of the Article. If they were, we would predict that the construction Art AP DP N should not be possible, under the assumption that the specifier of the NP should be higher configurationally than the adjunct AP. But the phrase των 'αγιων ... αυτου προφητων *his holy prophets* Ac 3:21, shows that this order is possible.

[18] It is unusual within X' theory to have two specifiers for a single phrase, especially with adjuncts allowed between the specifiers. Such a configuration is necessary to account for all the word orders allowed in Greek DPs, however, as the examples in this section show. Note that in English as well, the Quantifier *all* occurs to the left of the possessor as a second specifier in examples such as *all our students*.

The only alternative to this additional specifier level would be to consider one (or both) of these elements as a head of its own X' phrase, which then takes the DP as its complement. For instance, a Quantifier Phrase could be the top phrase with the Quantifier as its head, an empty specifier position, and DP as its complement. The adjuncts which now come between the two specifier positions could be adjoined to DP and Demonstratives would fill the (unique) specifier of DP. Such a structure would fit X' theory, but it has the drawback of positing a completely null phrase at the top of most nominal phrases where no Quantifier is present. Also, clear evidence of subcategorization is missing. We therefore prefer the additional specifier position within DP.

[19] The word αμπσοτερα *both* in its occurrence in Lk 5:7 fits the criteria of a Quantifier.

[20] Like Quantifiers, Demonstratives are grouped with Adjectives in traditional Greek grammars, despite the different syntactic properties that they display.

demonstrative αυτος.[21] The fourth demonstrative is τις *certain*, which is indefinite (but specific), is often used as an interrogative. It does not co-occur with the article since the article is definite and this demonstrative is indefinite. Examples of this demonstrative include τινος δουλος *a certain slave* Lk 7:2, and τις βασιλευς *which king*? Lk 14:31.

Quantifiers and Demonstratives, like the adjuncts in Greek, may precede or follow the head, although for Demonstratives the most common position is to follow.[22] The head which they precede is the Article (since they are specifiers of the DP); they do not occur in the same positions as Adjective Phrases. This is the first reason for which they must be distinguished from Adjectives.[23] Examples in which they precede include:

(31) 'ολον τον λαον *all the people* Ac 2:47

(32) 'ουτοι 'οι λογοι *these words* Rv 22:6

(33) 'ουτος 'ο λαος *this people* Mt 7:6

(34) ταυτην την παραβολην *this parable* Lk 13:6

(35) αυτος 'ο κυριος *the Lord himself* 1 Th 4:16

Examples in which they follow include:

(36) 'οι μαθηται παντες *all the disciples* Mt 26:56

(37) ταις 'ημεραις ταυταις *these days* Ac 1:15

(38) 'ο λαος 'ουτος *this people* Mt 15:8

(39) τον αγρον εκεινον *that field* Mt 13:44

(40) τα εργα αυτα *the works themselves* Jn 14:11

(41) 'ιερευς τις *a certain priest* Lk 1:5

Both specifiers may co-occur in a single DP. Our structure accounts for the fact that when the Demonstrative and Quantifier co-occur to the right of the head, they occur in the order Demonstrative-Quantifier, and that when they occur to the left of the head, they occur in the order Quantifier-Demonstrative.

(42) 'ολην την γην εκεινην *all that land* Mt 9:26

(43) τησ εκσουσιαν ταυτην 'απασαν *all this authority* Lk 4:6

We have not found any examples of Quantifiers and Demonstratives co-occurring to the left of an Article. Our structure claims that they should occur in the order Quantifier-Demonstrative-Article.[24]

The analysis we propose accounts for the lack of examples such as the following (where asterisk indicates a putatively ungrammatical example).

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[21] There are two homophonous words: the emphatic Demonstrative (discussed here), and the Adjective meaning *same*. They have different syntactic distribution as well as different meanings, as is well known.

[22] Mackridge (1985:193) claims that the most common position for Demonstratives in Modern Greek is before the Article.

[23] Of course, in some ways Adjectives, Demonstratives and Quantifiers are all members of some larger morphological class. They must all agree in number, gender and case with the head noun.

[24] While we do not have access to living native speakers of Koiné Greek, the fact that Modern Greek is so similar syntactically is helpful. Since working out the predictions of our analysis, we discovered the following confirming fact in Mackridge (1985:193) regarding Modern Greek: "the regular position of these modifiers is before the definite article (the quantifiers preceding the demonstratives)."

(44) *Article Quantifier Noun [25]
*'οι παντες μαθηται *(all the disciples)*

(45) *Article Demonstrative Noun
*'ο 'ουτος λαος *(this people)*

(46) *Demonstrative Quantifier Article Noun
*εκεινην 'ολην την γην *(all that land)*

Note that in the structure shown in (30) we propose that adjuncts intervene between the two specifiers. This is to account for examples such as the following in which the adjunct occurs to the outside of the demonstrative.[26]

(47) [καινη $_{AP}$] 'αυτη 'η ['υπο σου λαλουμενη $_{VP}$] διδαχη
this new teaching being spoken by you Ac 17:19

(48) 'η χηρα αυτη ['η [πτωχη] $_{AP}$]
this poor widow Mk 12:43, Lk 21:3

(49) τη 'ημερα εκεινη [τη [μια] $_{AP}$]
that first day Jn 20:19

(50) τον ναον τουτον [τον [χηειροποιητον] $_{AP}$]
this handmade shrine Mk 14:58

(51) το σημειον τουτο [τησ ιασεως $_{DP}$]
this sign of healing Ac 4:22

(52) [πολλασ $_{AP}$] ταυτας 'ημερας
these many days Ac 1:5

Adjuncts are not limited to this position, however. As shown in diagram (30), they may branch off D' (as illustrated above) and they may branch off N'. The latter structure permits them to occur between the Demonstrative and the Noun; this structure is illustrated in (53).

(53) της κακιας [σου $_{DP}$] ταυτης
this wickedness of yours Ac 8:22

(54) της γενεας [της σκολιας $_{AP}$] ταυτης
this wicked generation Ac 2:40

A second way in which the Quantifiers and Demonstratives (as specifiers) are different from Adjectives (as adjuncts) is illustrated in examples (36-41) above. Whereas APs always require the repeated article, Quantifiers and Demonstratives never occur with a repeated article.

For this reason, words like πολυς *much, many* are not members of the class of Quantifiers.

---

[25] Goodwin (1887: 204) points out that Quantifiers may in fact sometimes occur between the article and the noun in classical Greek, and Turner (1963: 201) cites the following examples in the New Testament (all with πας): Ac 19:7, Ac 20:18, Ac 27:37, Ga 5:14, and 2 Co 5:10. Both authors claim that the quantifier has a slightly different meaning than when it occurs in its usual position. The same is true in Modern Greek (Mackridge 1985:194), where 'ολος means *all* in one position and *whole* in the other. Regardless, these examples are not readily explained by our account unless the quantifier in question is categorially an Adjective as well as a Quantifier. This dual classification would enable such words to appear in more positions syntactically.

[26] We have not found any example where an adjunct occurs outside of the Quantifier. Our analysis predicts that this should not occur, since the Quantifier fills the top specifier position in the phrase. Adjunction to the DP itself is prohibited theoretically by Chomsky (1986: 6). This requires an alternative position for the extraposition of sentential complements (see section 7).

Note that the word πολυς uses the repeated article in example (55) (unlike Quantifiers), and that it follows the article in example (56) (also unlike Quantifiers).

(55) 'αι 'αμαρτιαι αυτης ['αι πολλαι $_{AP}$]
her many sins Lk 7:47

(56) τα [πολλα $_{AP}$] γραμματα
too much study Ac 26:24

Similarly, the word αυτος in the sense *same* is seen to be an Adjective by its position in the phrase. (Recall that if a Demonstrative precedes the head noun, it also precedes the article.) This is important to know, as introductory texts of Greek correctly explain, because the homophonous emphatic Demonstrative αυτος is distinguished from this Adjective by its distinct syntax.

(57) 'ο αυτος θεος
the same God 1 Co 12:6

5. Repeated article

In some of the examples which we presented above, we have seen something that Greek does which is quite unlike English.[27] When APs and VPs follow the noun in a phrase which has an article, they must also have (with few exceptions) an article identical to the one preceding the head noun.[28] DPs and PPs optionally begin with one of these repeated articles under these conditions. Some of the examples below also appeared earlier:

(58) του λαου [μου $_{DP}$] [του [εν Αιγυπτω] $_{PP}$]
my people in Egypt Ac 7:34

(59) την 'ωραν [της προσευχης $_{DP}$] [την [ενατην] $_{AP}$]
the ninth hour of prayer Ac 3:1

(60) 'ο λογος ['ο [του σταυρου] $_{DP}$]
the word of the cross 1 Co 1:18

(61) το φως [το [εν σοι] $_{PP}$]
the light in you Mt 6:23

We propose (following Myers 1987:95-110) that the adjuncts are all DPs headed by an Article which can take a variety of complements, not just NP, as shown in (62).

---

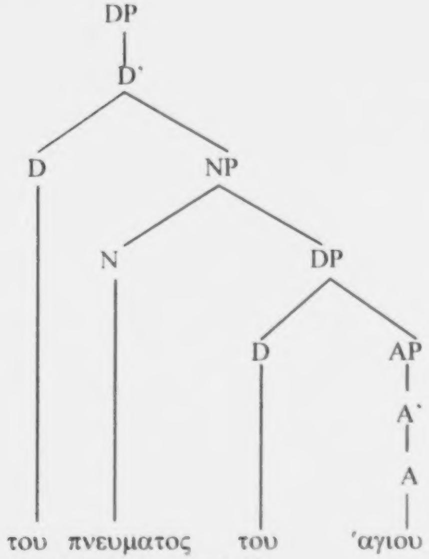
[27] Modern Greek apparently preserves this phenomenon just as it is described here (Mackridge 1985:194). Still other languages that we know of which are somewhat similar to Greek in this regard are the Bantu languages of Africa (Allan 1977, Myers 1987, etc.), which require the noun classifier to be repeated on all adjuncts, and Seri, a Hokan language of northwestern Mexico (Marlett 1981). Other languages have formal devices for expressing the idea of "in construction with". In Farsi, for example, the device is a suffix known as *ezáfet* (Rich Rhodes, p.c.).

[28] The following example shows that prenominal adjuncts do not take the repeated article:

(iv) των [περιερχομενων $_{VP}$] [Ιουδαιων $_{AP}$] εξορκιστων
the wandering Jewish exorcists Ac 19:13

Examples in which the post-nominal AP does not have a repeated article include την μαρτυριαν μειζω του Ιωαννου *the witness greater than John* Jn 5:36, and 'ο οχλος πολυς *the great crowd* Jn 12:9. Regarding the latter, Moulton (1908:84) states that "a very curious misplacement of the article occurs."

(62)



the Holy Spirit Ac 2:33

This structure accounts for the word orders seen in the examples, but does not account for the distribution of the repeated Article, i.e. when it must occur and when it may not occur. At present, we do not have any simple way to explain the distribution, so we propose that the generalizations given at the beginning of this section simply be stated as language-specific conditions on adjuncts within the Greek DP. Finally, the fact that the repeated Article must be identical to the Article which heads the DP can be seen as part of the concord agreement within the whole DP.

6. Empty Heads

We have been looking at examples which, for the most part, contain an overt head. We did talk about DPs with no Article present as head and diagrammed them with null heads. As a matter of fact, some NPs also have null or empty heads, as shown below. (We put the null sign in some location permitted by the phrase structure; in some cases more than one position is possible.)[29]

(63) πασι [τοις κατοικουσιν Ιερουσαλημ $_{VP}$] ∅
all the (people) inhabiting Jerusalem Ac 1:19

(64) τα [περι της βασιλειας του θεου $_{PP}$] ∅
the (things) concerning the kingdom of God Ac 1:3

(65) 'οι [εσχατοι $_{AP}$] ∅
the last (ones) Mt 20:16

(66) ['ενα $_{AP}$] τουτων ∅
one of these (people) Ac 1:22

(67) τουτων [των δυο $_{AP}$] ∅
these two (people) Ac 2:24

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[29] Alternatively, one might view these as instances of a pronoun like the word *one* (as in *the tall one*). Whereas in English this pronoun has phonetic realization, in Greek it is without phonological substance.

(68) τοις ∅ πασιν
all (people) 1 Co 9:22

(69) τις ∅
who? [which (person)?] Mt 3:7

(70) τι ∅
what (thing)? Mt 11:7

(71) παντες ∅
all, everyone Mk 14:50

(72) ∅ εκεινος
that one Jn 1:8

One type of phrase which does not occur is a DP which ends with an Article, Quantifier, or Demonstrative and an NP with an empty head, as illustrated below (where the asterisk indicates a putatively ungrammatical example):[30, 31]

(73) *[... Article [∅ $_{NP}$] $_{DP}$] e.g. *'ο ∅
(74) *[... Q [∅ $_{NP}$] $_{DP}$] e.g. *παντες 'ο ∅
(75) *[... Dem [∅ $_{NP}$] $_{DP}$] e.g. *εκεινος 'ο ∅

We do not know of any examples where an empty head has a complement, although examples (63)-(72) clearly show that empty heads may have adjuncts.

(76) ? [... [∅ XP $_{NP}$] $_{DP}$]

It is also the case that DPs which consist of an Article, an NP with an empty head, and a relative clause are ungrammatical if there are no adjuncts present, regardless of whether a specifier is present.[32]

(77) *Art [∅ $_{NP}$] [S]

7. Sentential complements

There are DPs in Greek which look quite different from those discussed above. We are thinking about those which have sentences with infinitival verbs and accusative subjects, usually following an article. Consider the objects of the prepositions προ (which governs genitive case),

---

[30] Given the fact that there are no living speakers of Koiné Greek with whom we can check various sentences, the statements of ungrammaticality expressed above are hypotheses and not facts. In some cases we feel fairly confident that the corpus is sufficient to establish the basic facts.

[31] Examples of a DP consisting solely of an Article are in fact attested in some situations, although some 'particle' apparently always follows in the examples we have seen, as shown below.

(v) του γαρ και γενος εσμεν
for we also are offspring of that one (Ac 17:28)

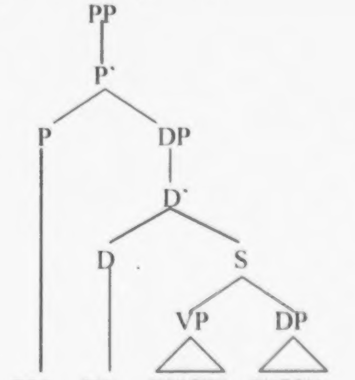
(vi) 'ο δε ειπεν αυτοις
he said to them Jn 4:32

Lindsay Whaley (p.c.) has informed us that bare articles (without an accompanying particle) occur in earlier stages of Greek. If these were common at one time, it may be interesting that they are so rare in Koiné Greek.

[32] Traditional grammars don't treat these facts in this way. Instead, they talk about the 'substantival' use of adjectives, participles, and the like. But this doesn't work at all well for many of the cases at hand, such as when the noun phrase consists of an Article and a PP, or an article and a quantifier. Traditional grammars also do not make explicit the claims presented above about the kinds of DPs which are *not* attested.

εν (which governs dative case), and πριν (not usually considered a preposition since it does not govern any case, as it typically occurs with a sentential complement) in the following examples:

(78)



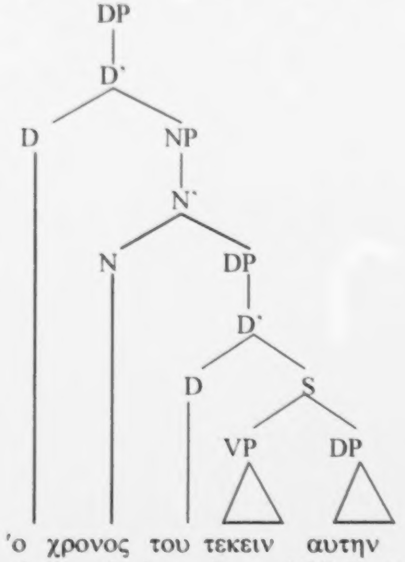
before he draws near Ac 23:15

(79) πριν [αλεκτορα φωνησαι]
before a cock crows Mt 26:34

(80) εν [τη 'ιερατευειν αυτον ...]
while he served as priest ... Lk 1:8

These examples show that the DP may consist of an Article with some kind of sentence (S) as its complement.[33] This sentence will have the usual properties of sentences except that the verb is in the infinitive, and the subject is in the accusative. (The case of the Article, if present, is governed by the Preposition, as expected in Greek grammar, and defaults to genitive case when there is no governor, as shown below.)

(81)



the time for her to bear (child) Lk 1:57

This kind of DP may be used as an adjunct, as in (81), or as a complement to a Noun Phrase, as in (82).

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[33] We depart here from the most technical kind of notation for these facts.

(82) ελπις πασα [του σωζεσθαι 'ημας]
all hope that we might be saved Ac 27:20

We assume that in (82) the sentential complement began in the complement position within the NP and then moved by extraposition to adjoin somewhere on the right. Such movement is common in languages: sentence-level constituents prefer to be peripheral for ease of processing.

8. Conclusion

In this article we have presented a proposal for generating the Greek Noun Phrase. It relies on a fairly straightforward application of X' theory using the widely-used notions of heads, complements, specifiers, and adjuncts. We proposed that Greek Noun Phrases are DPs which have the article as head and take NPs as their complement. Quantifiers and Demonstratives were seen to be specifiers of DP, with Quantifiers as the highest specifier. Adjunct phrases can be DPs which take either the usual NP complement or AP, VP, PP, or S complements. This variety of complements accounts for the repeated article seen in many Greek Noun Phrases. Ordering within the phrase was accounted for by allowing the phrase structure positions to be unordered left-to-right in the configurational diagram and by allowing adjunction to both the N' and D' levels.

While many details remain to be worked out and other constructions, such as relative clauses (see Culy 1989 for one account), need to be analyzed, we feel this proposal is a major step toward understanding the syntax of the Greek Noun Phrase and also lays the foundation for more adequate teaching of this important part of the Greek language.

References

Abney, Stephen. 1987. *The English noun phrase and its sentential aspect*. Ph.D. dissertation, Institute of Technology. Cambridge, Mass.

Allan, Keith. 1977. Classifiers. *Language* 5:285-311.

Chomsky, Noam. 1981. *Lectures on government and binding*. Dordrecht: Foris.

Chomsky, Noam. 1986. *Barriers*. Cambridge, Mass.: MIT Press.

Culy, Martin. 1989. *Relative clauses in Greek: A transformational approach*. M.A. thesis, University of North Dakota.

Davis, William Hersey. 1923. *Beginner's grammar of the Greek New Testament*. New York and London: Harper & Brothers.

Goodwin, William W. 1887. *An elementary Greek grammar*. Boston: Ginn.

Haegemann, Lilane. 1994. *Introduction to Government and Binding Theory*. 2nd edition. London: Blackwell.

Kayne, Richard S. 1994. *The antisymmetry of syntax*. Linguistic Inquiry Monograph 25. Cambridge, Mass.: MIT Press.

Mackgridge, Peter. 1985. *The Modern Greek language: A descriptive analysis of Standard Modern Greek*. New York: Oxford University Press.

Marlett, Stephen A. 1981. *The structure of Seri*. Ph.D. dissertation, University of California at San Diego.

Moulton, James Hope. 1908. *A grammar of New Testament Greek*, Vol. 1, *Prolegomena*. Edinburgh: T. and T. Clark.

Myers, Scott P. 1987. *Tone and the structure of words in Shona*. Ph.D. dissertation, University of

Massachusetts, Amherst.

Palmer, Micheal. 1995. *Levels of constituent structure in New Testament Greek.* Studies in Biblical Greek, vol. 4. New York: Peter Lang.

Sells, Peter. 1985. *Lectures on contemporary syntactic theories.* Stanford: CSLI.

Stowell, Tim. 1989. Subjects, specifiers, and X-Bar theory. In Mark Baltin and Anthony Kroch, eds. *Alternative conceptions of phrase structure.* 232-62. Chicago: University of Chicago Press.

Turner, Nigel. 1963. *A grammar of New Testament Greek,* Vol. 3, *Syntax.* Edinburgh: T. and T. Clark.

Whaley, Lindsay. 1995. The discourse function of Hellenistic Greek adjectives. Paper presented at the 1995 Meeting of the Linguistic Society of America, New Orleans.

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Meigu County Yi Tone

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Meigu County,[1] in the southern part of China's Sichuan Province, is primarily inhabited by people who are known in Chinese as Yi [ji^{35}] or Yizu [ji^{35}tsu^{35}], and in their own language as Nosu [no̠^{33}su^{33}]. The dialects of the Yi are Tibeto-Burman, and belong to the Loloish subgroup of Lolo-Burmese. Those Loloish dialects which are spoken by people officially considered to be Yi are usually divided into 6 major dialect groupings. The northernmost of these 6 groupings is called Northern Yi or Liangshan Yi. The speech variety of Meigu County is classified as part of the ʑi̠^{33}no̠^{33} dialect of Liangshan Yi.

The data was collected by the author in 1995 and 1996, primarily from a bilingual speaker in her 20s who grew up near the town of Bapu, the seat of government for Meigu County. She speaks Yi with some of her friends and with family members, some of whom are monolingual in Yi. A male speaker in his 20s from Bapu was also consulted.

The syllable structure is (C)V. The consonant and vowel inventories are given in Figure 1 and Figure 2 respectively.

There are three contrastive tones. One of these has three allophones, which are conditioned by the preceding tone. Tonal allophony is illustrated in the first data set.

There is also some tonal allomorphy. The second data set illustrates a rule which applies to nominal compounds and affects the tone of the first noun root. The third data set illustrates another rule which applies in number + classifier compounds and affects the tone of the classifier.[2]

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[1] Meigu County is in Liangshan Prefecture, and is one of the most inaccessible and traditional of the counties in Liangshan. More than 96% of the county's population is Yi, according to official statistics. The County did not exist before liberation, since during the Republic of China period the only ethnic Chinese in the area were slaves of the Yi. Naturally, use of the Yi language is very vigorous among all ages in the Yi villages of the county, especially outside of the county seat, the town of Bapu.

[2] Cross-dialectic comparison suggests that this rule may have a wider application than just number plus classifier compounds. Most nominal compounds which, based on cross-dialectic comparison, would be expected to have the tones 31 + 45, have 31 + 31, e.g. ɲo̠^{31}si̠^{31} *eye*, rather than the expected ɲo̠^{31}si̠^{45}.

Meigu County Yi Tone

(Sichuan, China)

Figure 1

	labial	alveolar	palatalized post-alveolar	flat post-alveolar	velar	glottal
vl. stops	p	t			k	
vl. asp. stops	p^h	t^h			k^h	
vd. stops	b	d			g	
prenasalized stops	mb	nd			ŋg	
vl. affricates		ts	tɕ	tʂ		
vl. asp. affricates		ts^h	$tɕ^h$	$tʂ^h$		
vd. affricates		dz	dʑ	dʐ		
prenasal. affricates		ndz	ndʑ	ndʐ		
vl. fricatives	f	s	ɕ	ʂ	x	h
vd. fricatives	v	z	ʑ	ʐ	ɣ	
vd. nasals	m	n	ɲ		ŋ	
vl. nasals	m̥	n̥	ɲ̊			
vd. lateral		l				
vl. lateral		l̥				

Figure 2

	advanced tongue root	pharyngealized
unrounded open-mid central vowels	ɐ	ɐ̱
unrounded mid front vowels	e	e̱
unrounded close near-front vowels	i	i̱
mid back vowels with compression rounding	o	o̱
close near-back vowels with compression rounding	u	u̱

Set 1

1.	si̠^{33} ts^{h}i^{31}bo^{11}	*one tree*
2.	si̠^{33} ɲe^{31}bo^{11}	*two trees*
3.	si̠^{33} so^{33}bo^{33}	*three trees*
4.	si̠^{33} li^{33}bo^{33}	*four trees*
5.	si̠^{33} ŋɐ^{33}bo^{33}	*five trees*
6.	si̠^{33} fu̠^{45}bo^{44}	*six trees*
7.	si̠^{33} ʂi^{31}bo^{11}	*seven trees*
8.	si̠^{33} he̠^{45}bo^{44}	*eight trees*
9.	si̠^{33} bo^{33}	*a tree*
10.	he̠^{33} mɐ̠^{33}	*a mouse*
11.	he̠^{33} ts^{h}i^{31}mɐ̠^{11}	*one mouse*
12.	he̠^{33} ɲe^{31}mɐ̠^{11}	*two mice*
13.	he̠^{33} so̠^{33}mɐ̠^{33}	*three mice*
14.	he̠^{33} li^{33}mɐ̠^{33}	*four mice*
15.	he̠^{33} ŋɐ̠^{33}mɐ̠^{33}	*five mice*
16.	he̠^{33} fu̠^{45}mɐ̠^{44}	*six mice*
17.	he̠^{33} ʂi^{31}mɐ̠^{11}	*seven mice*
18.	ne^{33} ʂɐ̠^{33}ɐ̠^{31} tɐ̠^{11} lɐ̠^{33}	*Where are you coming from?*
19.	ŋɐ̠^{33} ɟe^{33} ko^{33} tɐ̠^{33} lɐ̠^{33}	*I'm coming from home.*
20.	ŋɐ̠^{33} dzɐ̠^{33} dzɐ^{33} tɐ̠^{33} lɐ̠^{33}	*I'm coming from eating.*
21.	ts^{h}i^{33} ɐ̠^{31}lɐ̠^{11} o̠^{33}	*He's not coming anymore.*
22.	ne^{33} ʂɐ̠^{33}ɐ̠^{31} ko^{11} bo^{33}	*Where are you going?*
23.	ŋɐ̠^{33} ɟe^{33} ko^{33} bo^{33}	*I'm going home.*
24.	ŋɐ^{33}	*It is.*
25.	ɐ̠^{31}ŋɐ^{11}	*It isn't*

Set 2

1.	ŋgɐ^{33}	*buckwheat*	ŋgɐ^{31}tɕʰi^{11}	*sweet buckwheat*
2.	ŋgɐ^{33}	*buckwheat*	ŋgɐ̠^{31}no̠^{11}	*bitter buckwheat*
3.	bu^{33}	*bug*	bu^{31}de^{11}	*earthworm*
4.	mu^{33}	*horse*	mu^{31}pɐ̠^{31}	*male horse*
5.	kʰɐ^{33}	*mouth*	kʰɐ̠^{31}pʰe̠^{31}	*mouth*
6.	jo^{33}	*sheep*	jo^{31}mo^{31}	*ewe*
7.	jo^{33}	*sheep*	jo^{31}zɐ^{11}	*lamb*
8.	lɐ^{33}	*musk deer*	lɐ^{31}pu^{11}	*male musk deer*
9.	lɐ^{33}	*musk deer*	lɐ^{31}mo^{31}	*female musk deer*
10.	ŋgɐ^{33}	*buckwheat*	ŋgɐ^{33}fu^{33}	*buckwheat bread*
11.	vo̠^{33}	*chicken*	vo̠^{33}tɕʰe^{31}	*chicken egg*
12.	mu^{33}	*earth*	mu^{33}s̠i^{33}	*sand*

Set 3

1.	tsʰi^{31}tʰo̠^{31}	*one (drop)*
2.	ɲe^{31}tʰo̠^{31}	*two (drops)*
3.	so̠^{33}tʰo̠^{45}	*three (drops)*
4.	li^{33}tʰo̠^{45}	*four (drops)*
5.	ŋɐ^{33}tʰo̠^{45}	*five (drops)*
6.	fu̠^{45}tʰo̠^{45}	*six (drops)*
7.	s̠i^{31}tʰo̠^{31}	*seven (drops)*
8.	he̠^{45}tʰo̠^{45}	*eight (drops)*
9.	gu^{33}tʰo^{45}	*nine (drops)*
10.	ɐ̠^{31}vɐ̠^{45}	*not good*
11.	mu̠^{31}tu̠^{45}	*fire*

A Search for Inflectional Priming Reveals an Effect of Discourse Type on the Lexical Access of Inflected Verbs[*]

Greg Thomson and Bushra Adnan Zawaydeh

A cross-modal priming experiment was conducted to test the hypothesis that lexical access of verbs marked with a specific inflectional suffix would be facilitated by immediately prior exposure to semantically and contextually unrelated verbs with the same suffix. Such priming was not detected. Rather it turned out that bare root forms showed an absolute advantage over inflected forms in this experimental paradigm. However, an unanticipated finding appeared: responses to inflected forms were affected by the kind of discourse that was being auditorily attended to at the time of the visual lexical decision. There was no such effect of discourse context on responses to uninflected verbs: The results lend some support to the view that inflection triggers discourse integration.

1. Introduction

1.1. Overview

The research reported here began with a conception of the lexicon in which inflected forms of common words are listed in the lexicon with their inflectional affixes attached (Bybee 1988, 1995). For example, the word *jumped* would be listed in the lexicon with the *-ed* attached. The prediction was that given a pair like *jumped/poked*, there would be priming of the second member (*poked*) by the first (*jumped*). By contrast, in the case of pairs like *jumping/poked*, where the inflection differs, there would be no priming effect.[1] This prediction was based on Bybee's model of the lexicon, according to which all *-ed* inflected verb forms are linked to one another. Rather than test this hypothesis with isolated words, we decided to place the priming words in aurally presented sentences, while presenting the targets visually.

As will be seen, it turned out that our prediction was not supported. However, in the process of testing this prediction, we discovered an unanticipated effect which has more of a bearing on the *function* of inflectional affixes than on the issue of their lexical organization. In what follows, I begin with the consideration of the original hypothesis and its significance. After describing the experiment and the findings I then discuss the new direction in which the results point us. The question regarding inflection in the lexicon remains an important one. However, the findings here open the possibility of a new line of research into the function of inflectional affixes in language processing, a result which I believe is of some interest in its own right.

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[*] This is based on work originally reported in Thomson 1994 and Zawaydeh 1994. We have received helpful feedback from Jean Newman, Joan Bybee, Daniel Morrow, and Mark Karan.

[1] A word is said to be primed when subjects are able to access it more readily than otherwise. Increased ease of access might be reflected in the speed with which it can be read aloud (the naming latency), the speed with which subjects can decide that it is a real word (the lexical decision latency), the duration for which a word must be presented in order to be recognized (tachistiscopic presentation), or the amount of white noise through which a word can be identified. High frequency words are more readily accessed than low frequency words (frequency priming). Words that are repeated are more readily accessed than words that are presented for the first time (repetition priming). Words preceded by semantically related words are more rapidly accessed than words preceded by semantically unrelated words. In a priming experiment the words which are intended to receive priming are called targets, while the words causing the priming are sometimes called primes.

1.2. *Inflection and the Lexicon in Linguistics and Psycholinguistics*

A cursory survey of grammatical descriptions of languages from most parts of the world will reveal the usefulness of inflectional paradigms as a descriptive organizational device. In the case of verbs, most of the inflectional categories fall into a few etic families such as person/number, tense, aspect, and mood. The widespread presence of inflectional morphology in the world's languages may relate in as yet poorly understood ways to fundamental aspects of language processing.

From a theoretical perspective, linguists in the twentieth century have most often treated inflectional morphemes, like affixes generally, as meaningful "pieces" used in the construction of words (e.g., Bloomfield 1933), rather than as parts of lexical entries. In the early days of syntactic theory, it was common to treat structure below the word level as a downward continuation of phrase-style syntax (e.g. Chomsky 1957; Lees 1963). Difficulties quickly arose in this total merger of morphology and syntax (Chomsky 1970). The resulting lexicalist hypothesis allowed words with nonproductive derivational affixes and irregular inflection to be listed in the lexicon with the affixes attached, and also allowed for the expressions of the relatedness of words which shared such affixes. On the other hand, words with regular affixes would not be included in the lexical listing, but would rather result from the operation of rules which combine affixes with stems or rules which "spell out" feature bundles as affixes. These productive rules might operate within the lexicon (particularly if they add derivational affixes), or they might occur at some point during or after syntactic operations (particularly if they add inflectional affixes). Recently there has been some debate about whether the affixes that are added by rules are themselves lexical items (Lieber 1992; Halle and Marantz 1993) or whether they are better viewed as simply involving alterations in the forms of words (Anderson 1992; Beard 1995). Bybee (1988, 1995) is unusual among linguists in maintaining that common regularly inflected words are listed in the lexicon rather than being created through the productive concatenation of lexical "pieces" or by productive spelling rules.

Turning to the study of inflection in psychology we find that it grew out of an interest in word recognition. According to Henderson (1989), this interest in word recognition in turn grew out of a general interest in pattern recognition, rather than out of interest in the mental lexicon or language processing. The early study of inflection by Gibson and Guinet (1971) probably falls in this category. There was subsequently a shift to interest in lexical organization and lexical access as psycholinguistic phenomena. Still, the heritage of word recognition as pattern recognition may have predisposed psycholinguists to be more willing than linguists to treat inflected words as singular perceptual objects.

In fact, the study of speech production, especially by scholars using speech errors as a source of data (Bock & Eberhard 1993; Garrett 1980; MacKay 1979) resulted in models in which regular inflected forms are claimed to be constructed by combining stem and affix on line, consistent in spirit with most linguistic models. The production evidence is not unequivocal however, at least in the view of Butterworth (1983) who broke ranks with Garrett and MacKay on the issue of the psychological productivity of inflectional morphology, arguing that inflected words are accessed intact from the mental lexicon during speech production. Pinker (1991) reports an experiment in which subjects were shown present tense verbs and required to respond by producing the past forms. For verbs with irregular past forms, the response latencies were affected by the frequency of the irregular item (based on the Francis and Kuc̲era 1982 frequencies of English words). The response latencies for regular past forms were not affected by frequency. Pinker takes this as evidence that regular forms are constructed on-line, while irregular forms are retrieved from memory.

Our concern here is with the comprehension of inflected forms rather than with their production in speech. In contrast with students of language production, students of comprehension have generally acted as though the mental language processor deals in whole inflected words, although an early step in word identification may involve identifying the stem (Feldman & Fowler 1987; Fowler, Napps, & Feldman 1985; Jarvella & Meijers 1983; Lukatela, et al. 1978; Murrell & Morton 1974; Stanners, Neisser, Hernon & Hall 1979; Taft 1979; Laudanna, et al. 1989).

These findings generally suggest that in some sense inflectional variants of a single word are instances of "the same word".[2] This has been demonstrated using a wide range of experimental techniques.[3] In general, the results favor treating inflectional variants of a single stem as instances of the same lexical item.

Most of the above cited studies are studies of English. Exceptions are Jarvella and Meijers 1983 (Dutch) and Laudanna, et al. 1989 (Italian). It could be argued that the most these studies indicate is that it is the stem that is both the priming element and the primed element in inflectionally related pairs such as *walks/walked*. For example, Jarvella and Meijers' (1983) subjects could perform the judgment that two words contained the same stem just as quickly when shown an inflected and an uninflected variant of a single stem as when shown two instances of the identical uninflected stem. The further conclusion that an inflected stem and its uninflected counterpart are in some sense instances of "the same word" may not be warranted on the basis of such evidence.

However, studies by Lukatela and colleagues (Lukatela, Gligorijevic, Kostic, & Turvey 1980; Lukatela, et al. 1978) with Serbo-Croatian speaking subjects led to the proposal that the central member of an inflectional family is not the stem, but rather the base form, which only sometimes turns out to be the bare stem.[4] They found that lexical decision latencies were shortest with the nominative singular forms of nouns (what are considered the base forms). For masculine nouns these were the uninflected stems, but nominative feminine nouns are inflected and have the same level of morphological complexity as non-nominative case-marked masculine and feminine nouns.[5] Thus it may be the base status, not the absence of inflection, that facilitates lexical access.[6]

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[2] As the terms are used here, a stem is a form which can take inflectional affixes. A stem that is an atomic unit is a root. In general a root need not be a stem, but in the experiment reported here, all stems are roots, that is, they cannot by anyone's reckoning be divided into smaller units other than phonological units. In connection with the literature in general we will speak of inflected stêms. In connection with the experiment here, we will generally speak of roots.

[3] The techniques employed included tachistoscopic presentation (Murrell & Morton 1974) lexical decision (Fowler, et al., 1985; Stanners, et al., 1979; Taft 1979), and auditory presentation in the presence of noise (Kemply & Morton, 1982). The evidence supporting the claim that inflectional variants are instances of "the same word" includes frequency priming (Taft, 1979), repetition priming (Fowler, et al., 1985; Kemply & Morton 1982; Murrell & Morton 1974; Stanners, et al., 1979), and same-or-different judgments (Jarvella & Meijers 1983).

[4] An inflectional family is the lemma of words based on inflectional variation of the same stem, such as *kick, kicked, kicks, kicking*. What counts as a base form for a given lexical category will obviously be language specific, but it is an interesting question whether it can be partly or wholly predicted from other language-specific morphological facts along with cross-linguistic principles.

It has been shown that case-inflected nouns sharing a common base in Serbo-Croatian cause significant facilitation of one another in a lexical decision task. However, this priming effect is much smaller than the bidirectional priming between base forms and other forms. Feldman and Fowler 1987 take this as evidence for the satellite model proposed by Lukatela et al. (1980). In this model of the mental lexicon, inflectional families (sometimes referred to as *lemmas*) are connected in a manner suggested by Figure 1, with the base form in the center, and other forms attached to it as satellites.

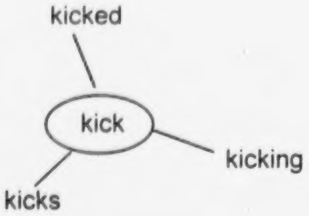

Figure 1. Satellite model of lexical representation

The fact that the amount of priming of one non-base form by another is less than the amount of priming between a base form and a non-base form is thus explained by the claim that the link between separate non-base forms is indirect, mediated by the base, while the connection between base and non-base forms is direct.

The satellite model deals with the special status of the base, but says little about the role of inflectional affixes in processing. Günther (1988) found evidence for a base bias in lexical decisions which disappeared in the presence of syntactic priming (i.e., where the target word occurred in a syntactic context which required either a base or non-base form). Similar findings were previously reported for English by Tyler and Marslen-Wilson (1986). Günther proposed that the satellite model be replaced with a model in which a lemma of inflectional variants including the base form contains a pointer which must be set to choose the form required by a given syntactic context. The special status of the base form derives from its being the default form. That is, the pointer is preset to the base form and must be reset by the syntactic context as required to point to a different form.

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[5] Actually the latencies for the feminine nominatives were shorter than for the masculine ones. The authors suggest this may result from the fact that the masculine stems tend to be longer. It may also be that the presence of an inflection makes it easier to judge the word to be a word. Taft 1976 found that the presence of an inflectional affix made it harder for subjects to reject a non-word in a lexical decision task than to reject uninflected non-words.

[6] The base form would typically be the most frequent form, the one learned earliest, and the form used to "name" a word, as when giving a word list.

Günther's pointers may be an unnecessary innovation. Bybee's (1988, 1996) network model of the lexicon appears to raise the possibility of accomplishing the same ends by means of the independently motivated concept of spreading activation (Collins & Loftus 1975; Dell 1986). Bybee's model, which she relates explicitly to the satellite model (Lukatela, et al., 1980) can be considered a refinement of that model. Although her model also assigns primacy to the base form, it attempts to deal with the role of affixes as well as stems. In Bybee's model, instances of the same affix, like instances of the same stem, are linked in the lexicon in a manner suggested by Figure 2.

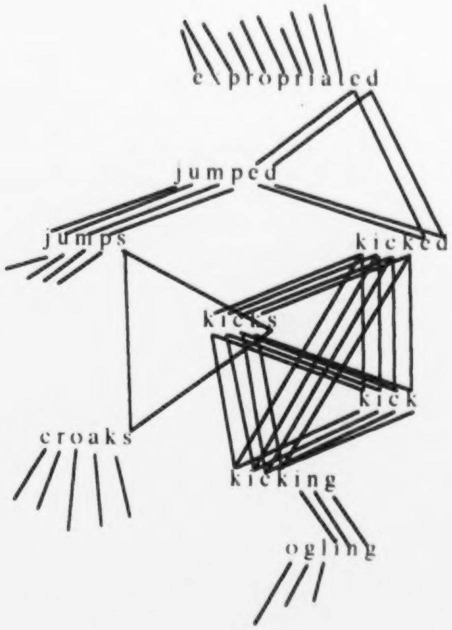

Figure 2. "Morphology as lexical representation" model

One of Bybee's arguments is that children learning a language must first learn a number of instances of words with a given inflection before the generalization can be made equating those instances with one another and relating them to their semantic content. This generalizing from specific instances of a given inflection based on commonalties of form and meaning is achieved in Bybee's model through the setting up of links between the separate instances of the same inflectional affix. These include semantic and phonological connections.

Bybee's model raises the possibility that a network of words containing a particular inflectional affix might be slightly activated at any given moment during language processing (say, by syntactic or discourse context). In production, the semantic content of an intended message (say, a message about someone *poking* someone) would send activation to all inflectional variants of a particular stem (*poke, poked, pokes, poking*). But since the desired inflectional variant (let's say, *poked*) would already be slightly activated due to its membership in the currently active network of like-inflected verbs (in this case, all *-ed* inflected verbs), it would reach threshold before the other variants and thus be selected. During language comprehension, if the inflection is marked by a suffix, the model could be held to predict that the inflected form with the appropriate suffix will be primed, so that the suffix would be anticipated as soon as the stem is identified. In fact, Tyler and Marslen-Wilson (*1986*) have demonstrated this to be the case through auditory gating.[7]

The present experiment was designed to test whether an English verb with a specific inflectional suffix would show a priming effect on other verbs with the same suffix. The question was whether, for example, *kicked* in Figure 2 would prime *jumped* (in contrast with *jumps*). Such a finding could be taken as support for Bybee's model, with spreading activation. The priming effect might be difficult to detect however. Presumably the contribution of the suffix to the activation of the word would be small when compared with the contribution of the stem. Otherwise, as pointed out by Jean Newman (p.c., 1993) the massive network of activated suffixes could lead to frequent activation errors.

The following experiment was aimed at detecting priming of inflected stems by other stems with the same inflection. The detection of such priming would support Bybee's model of the lexicon over the satellite model. It would not in general support a purely concatenative view of inflectional affixes, since detectable priming would suggest that the entire word was facilitated, not just the suffix, given the short time course of word identification and the extremely brief duration of the -ed suffix. The predicted finding might however support a process theory of inflection (e.g., Anderson 1992), since the process of dealing with a particular inflection (whether in comprehension or production) might conceivably be susceptible to priming effects.[8]

2. Method

2.1. Subjects

Fifteen undergraduate students at the University of New Mexico participated as volunteers in the experiment. All but one received extra credit in an introductory linguistics course as a result of participating and preparing a one-page write-up of the experience. There were twelve female and three male subjects, all of whom were native speakers of English.

2.2. Materials

The experiment employed a cross-modal lexical decision technique: while listening to *aurally presented sentences* which contained the priming words, subjects responded to *visually presented target words*. Since the spoken sentences were intended to prime the visual targets, I refer to them at times as *priming sentences* without prejudice as to whether or not they actually achieve any priming of the target words.

The sixty spoken sentences were of two types. In the first type, called here *-ed sentences*, there was a conjunction of three past tense verb phrases in which the verbs had regular *-ed* morphology, such as *The doctor delivered the baby, paddled its behind and listened to it holler.*

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[7] Auditory gating involves presenting the initial portion of words to subjects and determining the point in the word at they are able to guess the entire word the portion they have heard.

[8] However, models like Anderson's are models of competence, not of performance.

The visual target word was presented to the subject simultaneously with the offset of the third -*ed*. It was felt that if any priming were to occur due to the suffix, it would best be detected immediately following the third instance. There were thirty spoken sentences of this type.

The second type of spoken sentence, referred to here as *past progressive sentences*, provided a strong past tense environment, but without the -*ed* morphology. An example is *Just before dawn, the soldiers were nervously guarding the entrance to the palace*. Each of these sentences began with a time adverbial such as *just before dawn*, and contained a single main verb in the past progressive form. In normal discourse, such sentences commonly create a context to be followed by a subsequent sentence with a simple past tense verb. If the -*ed* sentences were to succeed in priming the -*ed* inflected targets, it was hoped that the past progressive sentences would help to determine whether the priming was due to the specific commonality of -*ed* morphology, or whether it might be attributed to the semantic effect of a past tense context. That is, the past progressive sentences provided a semantic past tense environment without the specific -*ed* morphology. There were thirty spoken sentences of this type as well. The placement of the visually presented target word in relation to the past progressive priming sentence was based on its placement in the -*ed* sentences. With the -*ed* sentences, the position of the target was automatically determined by the location of the third -*ed* inflected verb. The visual target word in such cases turned out to be an average of 2.5 syllables from the end of the sentence. Therefore the visual target words that were presented with the spoken past progressive sentences were placed an average of 2.5 syllables prior to the end of the sentences. It was hoped that any effect of sentence wrap-up processing would then be the same in both cases, since the presentation of the target word did in general overlap with the end of the sentence.

The sixty target words were based on one-syllable verb roots. One third had the -*ed* suffix (e.g., *jumped*), one third had the third person singular -*s* agreement suffix (e.g. *jumps*), and one third had the bare stem (e.g., *jump*). These three groups of target words were balanced for lemmatic frequency based on Francis and Kuc̲era (1982) and for orthographic length of the root.[9] A serious effort was made to avoid any obvious semantic relationship between a visual target word and the spoken priming sentence during which it was presented. (Subjects were informed that the word appearing on the screen would be unrelated to the sentence they were listening to.)

Thirty additional spoken sentences were used in combination with non-words for the sake of the lexical decision task. These included fifteen -*ed* sentences and fifteen past progressive sentences. A fourth set of thirty spoken sentences served as fillers. These each contained a modal auxiliary, so that no tense morphology would be involved. The visual probes presented during the spoken filler sentences consisted of ten non-words and twenty nouns.

There was thus a 2 x 3 design: two priming sentence conditions (-*ed* sentences vs. past progressive sentences) by three target word conditions (-*ed* suffix vs. -*s* suffix vs. bare root). No verb root was used twice either within or across the two factors. Both factors were within-subjects, with all fifteen subjects receiving the same stimuli. However, the 120 trials (of which only 60 involved real target words in the relevant priming contexts) were divided into two blocks which were fully matched in terms of the number of stimuli of each type. The order of the sixty trials in each block was then pseudorandomized.[10] Eight of the subjects were presented with the two blocks in one order and seven were presented with the two blocks in the opposite order.

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[9] Lemmatic frequency refers to the frequency of all inflected variants of a word combined.

[10] That is, a random number generator was used to determine the order of presentation, but adjustments were made to avoid sequences of three consecutive stimuli of the same type.

The digitized sentences were presented through headphones connected to an IBM XT computer, and the visual target words appeared on the screen of the same computer.

2.3. *Procedure*

Subjects were seated directly facing the computer screen. They were instructed to pay attention to the sentence which they heard through the headphones. In order to assist the subjects in attending to the sentences, comprehension questions were included with one in three sentences (preceded by a pause for the lexical decision response). These questions were presented visually on the computer screen and subjects responded orally. The pseudorandomization of the order of the stimuli meant that the subject could not predict in advance which stimuli would be followed by comprehension questions.

At the appropriate point during each spoken sentence the target word or non-word probe would appear on the computer screen. The subject would indicate whether the probe was a word or non-word by pushing a "yes" button or a "no" button respectively. As noted, subjects were instructed that the word appearing on the screen would be unrelated to the sentence they were listening to.

2.4. *Results*

It was observed that one subject delayed an abnormally long period before every response, and later commented that she was having difficulty concentrating. In all of the six conditions (two priming sentences types by three verb inflection types) this subject's means were more than three standard deviations greater than the group mean. Therefore this subject was omitted from the analysis, leaving fourteen subjects. For each remaining subject the mean reaction time for each of the six conditions was calculated and used as that subject's score for the condition. Generally this was based on ten trials for each condition, though response times were not included when the response was incorrect. (This affected only 3% of the trials.)

The basic descriptive statistics for the six conditions are shown in Table 1. A two-way within-subjects analysis of variance was performed.[11] The results are presented in Table 2.

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[11] Analysis of Variance, or ANOVA, is a statistical test used to compare means. The mean reaction times for the various conditions are shown in Table 1. ANOVA was used to determine which of those differences are statistically significant. Differences in mean reaction times are considered significant when the value in the p (probability) column is smaller than 0.05. This indicates that there is less than a 5% probability of the difference being the result of mere chance. Readers lacking statistical background can ignore Tables 1 and 2, as the significant differences are discussed in the text.

Priming sentence	-ed sentence			past progressive		
Target word form	root+*ed*	root+*s*	bare root	root+*ed*	root+*s*	bare root
Mean (in milliseconds):	830.4	856.2	730.5	796.2	789.8	745.7
Std. Deviation:	156.2	140.6	124.8	154.1	133.5	85.6
Variance:	24399.4	19759.3	15573.9	23756.1	17816.4	7335.7
Minimum:	631.2	725.4	566.4	605.5	613.5	636.3
Maximum:	1175.4	1283.8	946.5	1216.1	1064.5	948.3

Table 1. Descriptive statistics for the six experimental conditions

(Means are from 14 subjects, where each subject's score for each condition is itself a mean based on up to ten trials.)

Source	df	Sum of Squares	Mean Square	F-Value	P-Value
Subject	13	1099009.41	84539.18		
Priming Sentence	1	17005.99	17005.98	5.64	.0336
Priming Sententence x Subject	13	39197.97	3015.22		
Target Form	2	120831.21	60415.60	8.52	.0014
Target Form x Subject	26	184213.57	7085.13		
Priming Sentence x Target Form	2	23672.67	11836.33	3.42	.0479
Priming Sentence x Target Form x Subject	26	89908.96	3458.04		

Table 2. Analysis of variance for mean response times in two sentence priming conditions (within-subject) by three target word conditions (within-subjects)

Significant main effects were found for both the priming sentence type (*ed* sentence vs. past progressive) [$F(1,13) = 5.640$, $MSe = 3015.22$, $p < .05$] and for the target word form (*-ed* vs. *-s* vs. bare root) [$F(2,26) = 8.52$, $MSe = 7085.13$, $p < .01$].[12] In addition there was a significant interaction between these two factors (priming sentence type and target word inflectional form) [$F(2,26) = 3.42$, $MSe = 3458$, $p < .05$]. The interaction plot is shown in Figure 3.[13]

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[12] In brief, this amounts to saying first, that subjects took longer to respond when listening to *-ed* sentences than when listening to progressive sentences, and second, that subjects responded faster to some verb forms than others (in particular, they responded more quickly to uninflected verbs than to inflected ones).

[13] In short, the response time to inflected verbs was affected by the type of priming sentence, while the response time to bare roots was not.

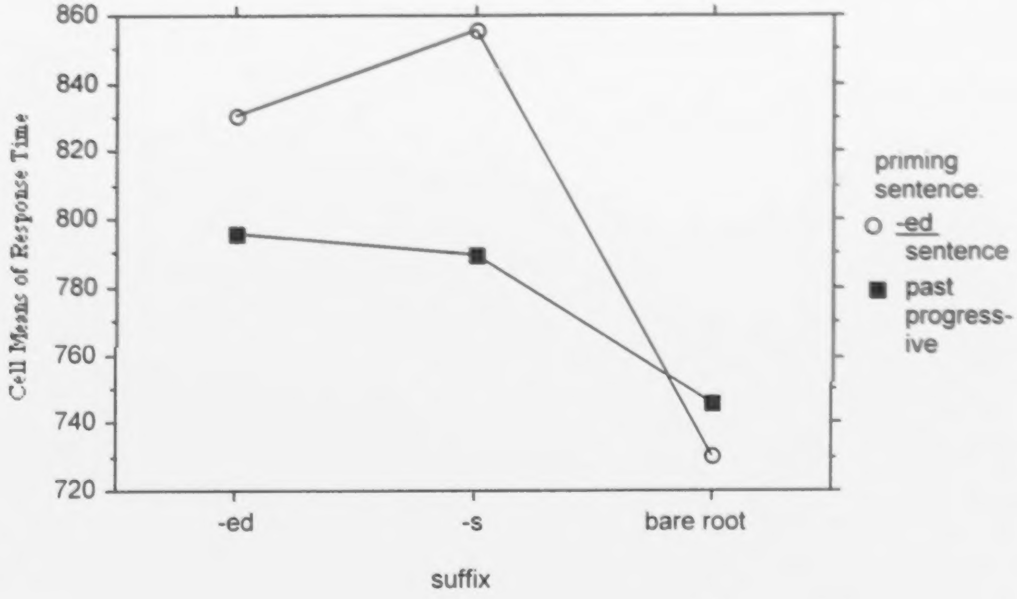

Figure 3. Interaction graph (priming sentence type by target word form)

It is difficult to interpret the results with complete confidence beyond acknowledging the two main effects and the interaction. Common post-hoc analyses are "not appropriate to compare the means of within subject factors" (Gagnon, et al. 1993: 213).

The comparison of greatest interest in connection with our original hypothesis is between the response times to the three verb types (*-ed, -s,* bare root) verbs in the *-ed* sentence condition, where we predicted that the response times to *-ed* forms would be faster than the response time to *-s* forms or bare roots. Therefore, *t*-tests were performed comparing the *-ed* verb response timed with the response times for each of the other two verb types.[14] The difference between response times to *-ed* verbs and to bare roots in the *-ed* sentence condition was 99.9 ms ($t[13]=3.06$, $p=.0092$). Unfortunately for the hypothesis, however, this difference was in the wrong direction, with the response time to bare roots being faster than response times to *-ed* forms. The difference between the response times to *-ed* verbs and the response times to *-s* words in the *-ed* sentence condition was 25.74 ms which was clearly nonsignificant ($t[13]=.87$, $p=.39$).

Another comparison of some interest is between the response times to inflected verbs (whether *-ed* verbs or *-s* verbs) in the progressive sentence condition and response times to bare roots in the progressive sentence condition. The difference between those two means is 47.22 ms ($t[13]=2.01$, $p=.066$) approaches significance.

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[14] A *t*-test is typically used to compare two means. It does not give a different result from ANOVA, but the latter must always be used when more than two means are being compared or when there are two or more factors. As with ANOVA, the purpose of the *t*-test is to determine the probability that a difference between two means is due to chance. If this probability is less than 5% (written $p<.05$) then the difference is considered significant in most psycholinguistic studies.

There was a difference of 35.25 ms in mean response times to *-ed* forms in the two sentence conditions, representing a nonsignificant trend (*t*[13]=1.46, *p*=.16). In the case of the *-s* inflected stems the difference between the mean reaction times two sentence conditions is 66.37 ms, which is significant (*t*[13]=2.75m *p=.016*).

In general, then, subjects responded more quickly to uninflected targets than to inflected ones although the difference was significant only in the *-ed* sentence condition. And the type of sentences subjects were listening to had a significant influence on response times to inflected forms, but had no influence on response times to bare stems.

2.5. Discussion

The hypothesis of this study was not supported. It was predicted that while listening to the spoken *-ed* sentences, subjects would respond more quickly to target words in the *-ed* form than in the *-s* form or the bare root form. This was based on Bybee's (1988, 1995) concept of the lexicon, in which there are connections between all *-ed* verbs. In this experiment it turned out that there was a clear advantage in responses to bare stems. However, the main cause of this effect appears to be revealed by the interaction: responses to inflected stems were affected by the auditorily presented sentences while responses to bare stems were not, at least not obviously affected by those sentences.

Interestingly enough, Stanners, et al. (1979) did not find a significant difference in response times to English regularly inflected verbs as opposed to bare root forms (though they did find a significant difference when bare root forms were compared with *irregularly* inflected forms). Combining the Stanners, et al. results with our own, we might well conclude that it is the aurally presented sentences that are causing the increase in processing time for inflected words, but not for bare stems. This effect of the aurally presented sentences would obscure any advantage of *-ed* verbs that might be caused by spreading activation in a Bybeean lexicon. Therefore, to get at the original question adequately it would be necessary to use a standard lexical decision task without the auditorily presented sentences.

It appears, then, that the presence of inflectional affixes on the lexical decision targets caused some increased processing difficulty related to the type of sentence being auditorily attended to. This extra processing difficulty of the inflected forms as over against the bare root forms appeared to express itself another way as well. Approximately 1.33% of responses to individual trials showed extreme response times in the sense of being more than three standard deviations beyond the particular subject's mean response time. These were well distributed among the subjects and items (only one subject had two extreme response times, while ten had a single extreme response times, and none had more than two; no single item caused an extreme response time more than once). Of the 12 response times in this category, two are in response to bare roots and the remainder are in response to inflected forms (seven to *-s* forms, three to *-ed* forms). A similar pattern is observed in relation to erroneous responses. Of the 27 that occurred (approximately 3% of the trials) five involved responses to bare roots and 22 involved responses to inflected forms (15 *-ed*, 7 *-s*). If we group the extreme response times and erroneous responses as *problematic responses* we find that of the 39 problematic responses, seven are responses to bare root forms, while 32 are responses to inflected forms. An equal distribution would have 26 problematic responses for inflected forms and 13 for bare roots. The observed distribution differs significantly from this: $\chi^2(1) = 4.15$, $p = .0415$.[15]

Although the question of whether *-ed* verbs can prime other *-ed* verbs must remain in abeyance at this point, we obviously need to address the question of why the sentence type affects the processing difficulty of inflected verb targets. To get at this, I suggest we cease thinking of sentence types in terms of simple past tense (*-ed* sentences) vs. progressive aspect (progressive sentences). In fact, this tense/aspect distinction reflects a fundamental discourse distinction. A sentence such as *The doctor delivered the baby, paddled its behind and listened to it holler* presents a chain of events, while a sentence such as *Just before dawn the soldiers were nervously guarding the entrance to the palace* provides a setting in which events can occur. Now when subjects were auditorily processing either of these two types of discourse, it appears that they were able to treat visually presented bare roots as simple isolated words, in line with the instructions they had been given. This is consistent with the proposal of Günther 1988 that a base form is the form used when naming a word. Thus an English verb root was simply the name of a verb, having no relationship to the discourse. But when inflection is added, it may be that it is no longer easy to treat the visually presented verb as simply the name of a verb. Morrow (1986) has proposed that the function of grammatical morphemes, including inflectional affixes, is to "organize objects and actions into situations". That is, the inflectional morphemes can be thought of as instructions to perform specific types of discourse integrations. For example, the simple past tense *-ed might* trigger the incrementation of the event line, while the progressive aspect might create the expectation of an event.

Morrow's (1986) proposal thus points the way toward an account of the extra processing our subjects appeared to engage in when responding to inflected forms as opposed to uninflected roots. As suggested above, they might have been able to treat the bare roots as isolated words, unrelated to the sentences they were listening to, in line with the instructions they had been given. But suppose that inflectional affixes do indeed trigger automatic discourse integration processes. The subjects were indeed engaging in discourse model-construction as they were suddenly forced to process the inflected verbs. Being confronted with an inflected verb while processing discourse would, by this reasoning, trigger at least some effort at further discourse integration. Hence the extra processing time.

To be concrete, if while hearing a sentence such as *The doctor delivered the baby, paddled its behind and listened (*) to it holler* the subjects are presented with a new *-ed* verb (e.g. *hopped*) at the point indicated by the asterisk, then even though they do not intend to relate the verb to the narrative they are listening to, the inflectional ending may trigger an automatic attempt to do so. If the verb is inflected with the *-s* suffix (e.g., *works*) the situation is perhaps not radically different, since this inflection is also used to mark events in discourse, a usage referred to as the historical present.

The fact that subjects were able to respond more quickly to inflected verbs when the auditory sentence was a progressive sentence might well be related to the fact that the progressive discourse, since it is giving the setting for an event, and thus creating the expectation of an event, would more readily accept an new event sentence then the *-ed* discourse, where the conjunction *and* before the third verb *listened* would lead the listener to assume that this event chain is now complete, making the sudden new event more of a surprise.

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[15] The χ^2 test is a statistical test for determining whether the distribution of items into categories is likely to be due to chance alone. In the present case, the probability is less than 5% (p=.0415) that problematic responses were randomly distributed among the inflected forms and bare root forms. Rather, it appears that the presence of inflection caused an increase in problematic responses.

3. Conclusion

In summary, responses to inflected verbs appear to be affected by discourse processing factors, while responses to uninflected verbs do not appear to be. This suggests that uninflected v discourse types on vario erbs can readily be treated as an isolated word, in line with Günther's (1988) proposal that the base form is the form used as the name of the word. Inflections, on the other hand,demand action. They trigger discourse integrative processes in line with the proposal of Morrow (1986).

If this reasoning is on the right track, then the present findings suggest a new paradigm for exploring the functions of inflectional affixes and other grammatical morphemes in on-line discourse processing. The cross-modal paradigm could be used to examine the effects of various us inflectional affixes and other grammatical morphemes. Thus the findings of this study open new areas of research, despite the fact that the hypothesis which inspired the present experiment cannot be explored using this paradigm.

References

Anderson, S. R. 1992. *A-Morphous morphology*. Cambridge: Cambridge University Press.

Beard, R. 1995. *Lexeme-Morpheme Base Morphology*. Buffalo: SUNY Press.

Bloomfield, L. 1933. *Language*. New York: Holt.

Bock, K., and K. M. Eberhard. 1993. Meaning, sound and syntax in English number agreement. *Language and Cognitive Processes*, *8* (1), 57-99.

Butterworth, B. 1983. Lexical Representation. In B. Butterworth (ed.), *Language Production* New York: Academic Press.

Bybee, J. L. 1988. Morphology as lexical organization. In M. Hammond and M. Noonan (eds.), *Theoretical morphology: Approaches in modern linguistics* (pp. 119-141). New York: Academic Press.

Bybee, J. 1995. Diachronic and typological properties of morphology and their implications for representation. In L. Feldman (ed.), *Morphological aspects of language processing* Hillsdale, N.J.: Erlbaum.

Chomsky, N. 1957. *Syntactic structures*. The Hague: Mouton.

Chomsky, N. 1970. Remarks on nominalizations. In R. A. Jacobs and P. S. Rosenbaum eds., *Readings in English transformational grammar* (pp. 184-211). Waltham, Mass.: Ginn.

Collins, A. M., and E. F. Loftus 1975. A spreading-activation theory of semantic processing. *Psychological Review*, *82* (6), 407-428.

Dell, G. S. 1986. A spreading-activation theory of retrieval in sentence production. *Psychological Review* 9:283-321.

Feldman, L. B., and C. A. Fowler 1987. The inflected noun system in Serbo-Croatian lexical representation of morphological structure. *Memory and Cognition* 15:1-12.

Fowler, C. A., S. E. Napps., and L. Feldman 1985. Relations among regular and irregular morphologically related words in the lexicon as revealed by repetition priming. *Memory and Cognition* 13:241-255.

Francis, W. N., and H. Kučera 1982. *Frequency analysis of English usage: Lexicon and grammar*. Boston: Houghton and Mifflin.

Gagnon, J., J. Roth, W. Finzer, R. Hofmann, K. Haycock, D. Feldman, and J. Simpson 1993. *SuperANOVA: Accessible general linear modeling*. Berkeley: Abacus Concepts.

Garrett, M. 1980. Levels of processing in sentence production. In B. Butterworth (ed.), *Language Production* New York: Academic Press.

Gibson, E. J., and L. Guinet 1971. Perception of inflections in brief visual presentations of words. *Journal of Verbal Learning and Verbal Behavior* 10:182-89.

Günther, H. 1988. Oblique word forms in visual word recognition. *Linguistics* 26:583-600.

Halle, M., and A. Marantz 1993. Distributed morphology and the pieces of inflection. In K. Hale and S. J. Keyser (eds.), *The view from building 20: Essays in linguistics in honor of Sylvain Bromberger* (pp. 111-176) Cambridge, Mass.: MIT Press.

Henderson, L. 1989. On mental representation of phonology and its diagnosis by measures of visual access speed. In W. Marslen-Wilson (ed.), *Lexical representation and process* (pp. 357-391). Cambridge Mass.: MIT Press.

Jarvella, R., J., and G. Meijers 1983. Recognizing morphemes in spoken words: Some evidence for a stem-organized mental lexicon. In G. G. Flores d'Arcais and R. J. Jarvella (eds.), *The process of language understanding* New York: Wiley.

Kemply, S. T., and J. Morton 1982. The effects of priming with regularly and irregularly related words in auditory word recognition. *British Journal of Psychology* 73:441-454.

Laudanna, A., W. Badecker, and A. Caramazza 1989. Priming homographic stems. *Journal of Memory and Language* 28:531-546.

Lieber, R. 1992. *Deconstructing morphology*. Chicago: University of Chicago Press.

Lees, R. B. 1963. *The grammar of English nominalizations*. Bloomington Indiana: Indiana University Research Center in Anthropology, Folklore, and Linguistics.

Lukatela, G., B. Gligorijevic, A. Kostic, and M. T. Turvey 1980. Representation of inflected nouns in the internal lexicon. *Memory and Cognition* 8:415-423.

Lukatela, G., Z. Mandic, B. Gligorijevic, A. Kostid, M. Savic., and M. Turvey 1978. Lexical decision for inflected nouns. *Language and Speech* 21:166-173.

MacKay, D. G. 1979. Lexical insertion, inflection, and derivation: creative processes in word production. *Journal of Psycholinguistic Research* 8:477-499.

Marslen-Wilson, W. D., and L. K. Tyler 1980. The temporal structure in spoken word recognition. *Cognition* 8:1-71.

Morrow, D. G. 1986. Grammatical morphemes and conceptual structure in discourse processing. *Cognitive Science* 10:423-455.

Murrell, G. A., and J. Morton 1974. Word recognition and morphemic structure. *Journal of Experimental Psychology* 102:963-968.

Pinker, S. 1991. Rules of Language. *Science* 253:530-535.

Stanners, R. F., J. J. Neisser, W. P. Hernon, and R. Hall 1979. Memory representations for morphologically related words. *Journal of Verbal Learning and Verbal Behavior* 18:399-412.

Thomson, G. 1994. Lexical access of inflected verbs: Is there evidence of morphological priming? Ms. University of New Mexico.

Taft, M. 1979. Recognition of affixed words and the word frequency effect. *Memory and Cognition* 7:263-272.

Tyler, L. K., and W. Marslen-Wilson 1986. The effects of context on the recognition of polymorphemic words. *Journal of Memory and Language* 25:741-752.

Zawaydeh, B. A. 1994. Morphological processing. Ms. University of New Mexico.

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